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# NATIONAL POULTRY DIGEST

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# You've Told Us to Go Ahead

Our question as to whether there is a place in the billion dollar poultry industry for the NATIONAL POULTRY DIGEST has been answered in the affirmative.

Approximately, 400 of you responded favorably to the mailing of the specimen issue. There were less than a dozen who rejected the idea completely. Of the remaining 1600 who received copies of the specimen number, we estimate that several hundred more will respond when they learn that regular publication has started.

With the additional orders that have trickled in as a result of word-of-mouth advertising on the part of those who received the specimen number, the NATIONAL POULTRY DIGEST makes its bow with a subscription list just under 500. This is far short of the number necessary to pay the mechanical costs, but we are hopeful that further word-of-mouth advertising on the part of those of you who thought well enough of our idea to become charter subscribers, will help to put us over our goal of 2,000 subscribers during 1939. The insert in this issue contains a liberal supply of convenient order forms for those of your friends who may see this copy and decide to become regular subscribers.

We hold no illusions as to the possible growth of the NATIONAL POULTRY DIGEST, believing that its saturation point will probably be somewhere between 3,000 and 5,000 subscribers. The subscription price is a limiting factor, and, in addition, we want to depend on the recommendations of our subscribers and on selective mailings for our growth.

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*(Continued on inside back cover)*

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NATIONAL

POULTRY DIGEST

Published monthly at Hanover, Pa., by Everybodys Poultry Magazine Pub. Co., Inc. C. N. Myers, pres.; Jas. T. Huston, vice-pres.; R. B. Alleman, sec.-treas.; Roland C. Hartman, editor; Thomas E. Moncrief, associate editor. Single copies, 25 cents. Subscriptions: $2.00 a year in the United States and the Pan-American postal union; $3.00 a year in Canada and foreign countries. Application pending for second-class entry at the postoffice, Hanover, Pa.

Vol. I, No. 1 January, 1939

*The Owner of the 1938 Champions*
*Outlines His Methods of . . .*

# Producing Laying Test Winners

By G. C. Morgan
Homestead Farm, Newtown, Conn.

*Condensed from a Talk*

ONE cannot produce a pen of birds that make a really creditable showing in any contest without having some real breeding background. In my case, I must go back to 1934 to get the history connected with my Storrs Pen. In that year, I had some 15 different individual matings, nine of which were fully R.O.P. Six were listed as special matings, for the dams of the sires heading these matings had records of less than 225 eggs.

The work of the year, 1934-35, produced one sire, No. 72, that was outstanding as shown by the progeny test. Briefly, this sire was mated to 11 females whose yearly production averaged slightly less than 225 eggs. I trapped 78 daughters from this mating and they averaged to lay 240 eggs, 26.4 ounces and 87.2 per cent livability.

During the season of 1935, I did not use this male because the United States R.O.P. Federation would not allow the progeny from such matings to become United States R.O.P. birds. That fall I offered this male (No. 72) to a man in New York State for $10.00. He would not use him because he felt that the dam's record was too low.

By the time July and August, 1935, began to roll around, I discovered that the progeny of this mating was the best that I had ever produced. By that time, however, I found to my sorrow that he was dead, but that I did have five really good cocks that came from this sire. The majority of

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Condensed from talk presented at the Eleventh Poultry Breeders School, Massachusetts State College, Amherst, Mass., Nov. 16-18, 1938

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INTENTIONAL 2ND EXPOSURE

the male progeny of this mating were sold for meat due to the difficulties that I had had with the United States R.O.P. Federation.

At the start of the 1936 breeding season I mated up six non-R.O.P. matings and 13 United States R.O.P. matings. Five of these non-R.O.P. matings were headed by sons (2 year old cocks) of No. 72. The results of these two different sets of matings were as follows:

### Non-R.O.P. Matings

310 daughters laid 86,637 eggs or an average of 221.7 eggs, 26.1 ounces, 6.35 lbs. body weight, and 94.8 per cent livability. 69.7 per cent qualified for R.O.P.

### United States R.O.P. Matings

301 daughters laid 59,465 eggs or an average of 197.5 eggs, 26.4 ounces 6.0 lbs. body weight, and 93.7 per cent livability. 51.4 per cent qualified for R.O.P.

From the above information, you can readily see that these two groups were evenly matched from the standpoint of numbers, but that the first far surpassed the second in eggs laid and also in hatchability, because of almost the same number of daughters from six matings as there were from the other 13. Both sets received the same care throughout and the same management.

This was the background back of my 1938 Storrs pen that finished with a record of 3,715 eggs and 4,001 points. Ten of the birds constituting this pen were grand-daughters or daughters of the four sons of Sire No. 72 used back in 1934. Another bird was a grand-daughter of Dam 4398, whose daughters never failed to pass every R.O.P. requirement. Another was the daughter of a four-year old hen whose parents were progeny tested back in 1933. The 13th bird came from straight R.O.P. lines.

### Must Get the Breaks to Win

There are two things that one has to contend with to win a contest. They are, first, produce well-bred birds, and, second, get the breaks. Every breeder to make a good showing must get the breaks of the game, such as the elimination of the disease hazard. This factor is very large when you consider the fact that the mortality at all standard contests in this country for the year ending 1938 was 23.3 per cent.

Last February I had one bird, No. 2, that nearly died, but foreman Jack Lynch at the Storrs Test was able to bring this bird back to laying by the end of March, and it was the eggs which this bird laid, 237 for the year, that was the life saver for the pen. It is a known fact that well-bred birds will never stand the pace unless they receive the right breaks.

### Breeding Factors Necessary

Let us now discard the question of the breaks of the game and consider the other factors necessary. These, I feel, come under the heading of breeding. They are as follows:

1. Livability (Laying-house)
2. Production
3. Egg Size
4. Summer persistency

Now that the records of the 13 birds in the pen, and not the records of the 10 high birds in any pen, figure in the final record, it is of absolute importance that every bird live, or at least live for the greatest part of the year. In my own case, I was most fortunate in that I did not lose a bird in the pen until 10 days before the end of the test, and this bird died of peritonitis due to an egg broken internally. Her record at the time of her death was 298 eggs. Today, high livability is an absolute requirement, to say nothing of the problems of selecting high producing pullets from good, egg-size families.

Personally, I am not interested in 300-eggers, but rather in producing a flock of 200-eggers without any culling, and a flock that will stand up and have 90 to 95 per cent of the birds in the flock at the end of the laying year. This is an economic problem which, if it could be worked out, would have a tremendous effect on the whole poultry industry.

On my own farm, the best results I have ever obtained was last year when my flock of 577 Red pullets under traps came through with a loss of only 48 birds for the year. They laid a total of 119,696 eggs or a hen housed average of 203.97 eggs.

### Summer Persistency Important

Summer persistency is the ability of the flock to lay right down through the last four months of the laying year. So many flocks will not stand the pace when it begins to get hot, and they break down. My Storrs pen last year laid a total of 1,174 eggs, or an average of 90.3 eggs per bird, from June 1 to September 22.

Another illustration of this factor is a group of pullets just finishing in the traps this fall, Nos. 7376-7425, on my own farm. These 50 pullets laid an average of 199.9 eggs on a hen housed basis and during the last four months, July to October, inclusive, they laid an average of 54.4 eggs (hen housed).

They laid about 25 per cent of their yearly production in the last third of the year. This is a very important economic factor for greater returns from any flock and should be watched very carefully in breeding.

Several years ago, after studying my records very carefully, I established two fundamental precepts for my breeding work. These I have followed very carefully up to the present time. I may be wrong in these assumptions, but after very careful study of my own records on a progeny test basis I made the following conclusions.

1. I do not consider any bird in any mating any better than the average of the family from which it may come.

2. In making up my individual matings, my first thought is that of the resulting progeny.

### No Bird Better Than Family Average

I may, perhaps, be wrong in my observations, but I will try to explain just what I have in mind. I feel that no bird, male or female, is any better than the average of the family from which he or she may come, that is the record of the dam or the bird itself may be high or low, yet on the average it is my contention that the carrying ability is only equal to the average of the families mated. In nearly every case, this ability to transmit varies somewhere within the limits or variations in each family.

As an illustration of this, I wish to refer you back to the sire, No. 72. This bird was the son of a progeny tested sire, No. 455, that had 52 daughters which averaged 210 eggs, 25.4 ounces, 6.2 pounds body weight and 94.2 per cent livability. The 10 sisters of No. 72 averaged to lay 192 eggs, 25.4 ounces, 6.4 pounds body weight and 100 per cent livability. The high bird in the family laid 277 eggs and the low sister, 101 eggs. Yet this male, when he was mated to 11 dams in 1934, which averaged to lay less than 225 eggs, produced 78 daughters which averaged to lay 240 eggs. One dam in this group No.

4398, had 16 daughters which averaged 269 eggs, 26.9 ounces, 6.2 pounds body weight and 93.9 per cent livability.

Apparently, this male was dominant for high egg production, and his carrying ability was far higher than the record of his dam or even that of his sisters. It was nearer that of the high sister of the family, which was within the variation of the family. The dominance of this line for high egg production has been carried down to the present.

A practice which, I believe, is doing more harm to the breeders themselves and which the breeders and the hatcherymen of this country have fostered, is the quoting of prices on breeding cockerels on the basis of the dam's record.

This is a very false premise, as no one can definitely state that such a bird, even though he may come from several generations of 300-eggers, is any better than another bird from a 200-egg dam in his ability to transmit.

### Male Is 50 Per Cent of Mating

In all my breeding work, I have been more interested in the male side of the family than the female side. Every male represents at least 50 per cent of any mating. A false step in the selection of the sire used means the difference between good or poor progeny or, in other words, the difference between profit and loss.

The work of the past four to five years has proved to me that the dam's record is relatively of no consequence in dealing with family and progeny tested lines. I am most interested in selecting sires from such proven lines that I can find each year.

If I can locate an exceptionally nice breeder, I am willing, after the experience of the past, to use a male or female breeder from a 22 to 23-ounce dam or record, provided the average of the family was well above 25-ounce level. During the 1936-37 season, I used one female with a 23.4-ounce record. The average egg size of her eight sisters was 24.4 ounces, yet when mated to sire 2002, a son of No. 72, her 16 daughters averaged 25.2 ounces, and only two were under 24 ounces, and one was as high as 28.1 ounces.

It is my conclusion, after studying these records over a period of years, that there cannot be any definite set of limits placed. Each and every breeder should be the cock of his own roost and he should be able to choose and select whatever breeders he thinks best should be used and should only be judged on his ability to produce high average producing families.

In all the breeding work that I have done at Homestead Farm, I have obtained my best progeny tested records from what is considered by many to be only mediocre birds. I am generally able to get better results from females that have laid from 200-249 eggs and from sires in the same group. I had a progeny tested line that I used before 1930 and that came from a 205 egg, 23.8-ounce dam, and this was a very good family. These birds will give me far better shell texture, better fertility and hatchability and far larger families to work with.

### Breeding with Cocks for Livability

There is one point that I wish to make, and that is, you can get farther ahead on this problem of better livability by breeding from cocks, two years old and older, than from breeding from old hens mated to cockerels. By breeding from cocks from known livability families that are from sires that have been progeny tested for high livability of the daughters in the laying house, and recognizing the fact that the sire represents at least 50 per cent of any mating, you can transmit this factor into your flock far faster this way than by breeding from old hens mated to cockerels of unknown ability to transmit this factor.

The cockerels, unless from proven lines for this factor, may carry a very high mortality factor and if so, you are intensifying the mortality factor and not lessening it.

### Selects Birds on Basis of Sires

You may not believe this, but it is an absolute fact that in selecting the pullets that I sent to the contests during the fall of 1936-37-38, I did not know what the dam's record was of any bird selected. I selected them on the basis of the sires they were from. For two years, this has worked out satisfactorily, and I have every reason to believe that it will work reasonably well again, perhaps, not as well as last year, but I feel this is sound judgment if they get the breaks.

The chief point that I want to make is that in producing better bred birds, whether for contests or for the home plant, just remember that poultry is not a bit different from any other line of animals. In dairy, swine, racing or draft horses, or what not, it is the proven sire that tells the story.

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## *The Effect of the British and Canadian Trade Agreements on American Poultry Producers*

The United States granted total concessions on poultry and eggs in the British and Canadian agreements on items whose imports were valued at $324,000 in 1936 and received concessions on items whose imports were valued at $142,000. All of the concessions by the United States involved duty reductions while duty reductions by Canada and the United Kingdom involved only products valued at $93,000. The average duty reduction, on an ad valorem basis, was approximately twice as much on the concessions made by the United States than on the concessions made by the other two countries.

The two most important concessions received by the United States were the reduction of the British preferential duty on eggs in Bermuda from 3 pence per dozen from June to December and from 3¾ pence per dozen from January to May, to a uniform rate of 1¼ pence throughout the year, and the reduction on shell eggs in Canada from 10 cents per dozen to 5 cents. Exports of eggs from the United States to Bermuda in 1936 were valued at $44,000 and to Canada at $35,000.

Important concessions made by the United States in the Canadian agreement include the reduction of the rate on live birds from 8 cents per pound to 4 cents, the reduction of the duty on dead birds from 10 cents per pound to 6 cents and the reduction in the duty on chicken eggs in the shell from 10 cents per dozen to 5 cents. Imports of live birds into the United States in 1936 were valued at $194,000, of dead birds at $57,000 and of shell eggs at $54,000.

—News Release, The National Cooperative Milk Producers' Assn., Jan. 2, 1939.

# Are Feeding Stuffs the Cause of Suspected Poisoning?

By Dr. H. R. Kraybill

State Chemist, Indiana

*Condensed from a Talk*

DURING a period of about 10 years, we examined somewhere in the neighborhood of about 700 samples of feeding stuffs, suspected of causing poisoning of farm animals, which were sent into our laboratories in connection with the enforcement of the state feeding stuffs law.

When these samples come into the laboratory, we make a careful examination of them microscopically, in order to see whether there are any inferior ingredients, any ingredients that might be moldy, or anything that might be toxic in constituents. In addition, we carry out feeding tests very frequently with laboratory animals—either rats or chickens. Here are some of the results of these examinations.

### Mixer Goes Wrong

A laying mash was submitted by a farmer with the statement that he had lost a large number of hens. No harmful ingredients were identified, except that we did find in this case that the sample contained about 37 per cent salt. Now whether that was entirely responsible for his trouble, or not, I don't know, but the feed manufacturer, we found out in tracing it in that particular case, had had something go wrong with his mixing machinery, and this lot had gotten out and carried a large amount of salt.

Aside from a very few restricted samples in a large number of samples, we have never found anything that was harmful.

A sample of poultry feed was submitted which was suspected of causing the death of a large number of hens. In this case, no harmful ingredients were identified. We fed the feed to rats. The rats made good gains of 22 grams per week, and showed absolutely no harmful effects.

In another case, a sample of laying mash was submitted with a statement that 75 hens were lost. We examined it and could find no harmful ingredients. The feed was fed to two rats and they made good gains with no harmful effect whatsoever.

### Not the Feed, But Disease

Quite frequently, in many instances in the case of poultry, we have an opportunity to have the Veterinary Department autopsy the animals that are sent in at the same time the samples of feed are sent in, and here is a typical case of that type. A sample of poultry feed was submitted with a statement that it was believed that the feed caused the death of a large number of chicks, and we again examined it and could find no harmful ingredient. The dead chicks were examined by the Veterinarian Department of the University and they pronounced them diseased with bacillary white diarrhea.

Talk Presented at Nutrition Conference for Veterinarians, Decatur, Ind., Aug. 5, 1938.
Sponsored by the Central Soya Company, Fort Wayne, Ind.

Quite frequently we find other diseases responsible. Here is a case of a sample of chick feed that was submitted with the statement that it caused the death of over 300 chicks. Again, we couldn't find anything injurious in the feed, and the Veterinary Department examined the chicks and it showed the presence of pullorum disease.

### Coccidiosis Gives Trouble

One more: A sample of growing mash was submitted with a statement that it had killed 155 chicks. We examined the sample and could find nothing injurious, but a subsequent investigation showed that the chicks were infested with coccidiosis.

Out of 700 samples examined, there were 275 samples of chick feed submitted. We found no harmful ingredients in any one of those samples. In only 23 of the cases were we able to have an examination made of birds in order to determine definitely whether or not disease was present, but in every one of those 23 cases the veterinarians found a disease on which the death of the animals could be based.

We had 175 samples of laying mashes and of those we found harmful ingredients in one of them. The chickens were examined in ten cases, and in every case a disease was found. So out of the entire group of 689 samples, we found harmful ingredients in only four. Thirty-six which were examined for diseases showed that disease was responsible for the loss of the animals. Twenty of these samples were fed to rats and a few of them fed to chickens, and in none of these cases except one case did we find any harmful effects in the growth of the rats, and that one case was a case where they wrote in and told us—they sent in a sample of white powder that had accidentally spilled into the feed bin. We examined this powder and found that it was arsenate of lead and that sample of feed did kill the rats.

So on the basis of these studies, we believe that the chances are very, very slight indeed that feeding stuffs can be justly blamed for the poisoning of farm animals.

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## *Dubs Combs of Day-Old Chicks*

Frozen combs are no problem for George A. Pearce, of Whitehouse, N. J. He dubs the combs of special pedigreed chicks, both cockerels and pullets, when one day old. The dubbed birds are always free from the danger of frozen combs in severe weather, hence, production is maintained at a high level even in the coldest months. And there is better fertility in the breeding flock.

For many years, Pearce dubbed his cockerels in the usual way, after they were grown. The advantages of dubbing as chicks, he finds, are that there is absolutely no danger of bleeding, the job is more easily and quickly done, and there is no apparent discomfort to the birds. The combs develop slightly as the birds grow, but are short and stubby, resembling somewhat a rose-combed bird.

—New Jersey Farm and Garden, December, 1938.

# The Role of Quality in Feeds

By R. M. Bethke
Ohio Agricultural Experiment Station

*Condensed from Feedstuffs*

NOT many years ago, it was thought that feeds which showed the same chemical analysis for protein, fat, fiber and minerals were of equal value. Today, we know that the ordinary chemical analysis of feeds can be very misleading, because it does not give us any information regarding the quality of the proteins and other feed essentials.

Two feeds may be of the same chemical analysis, but one might be worth from two to three times as much as the other because of their difference in feeding value or quality.

One of the first feed constituents with which quality was associated in a definite way was protein. What distinguishes a poor quality protein from a good quality protein?

### Why Protein Quality Differs

Science has shown that proteins are made up of different kinds and amounts of amino acids. The same kind and number of amino acids do not occur in all proteins. It has also been found that some of these amino acids are indispensable to the animal. If one or more of these essential amino acids are lacking in the feed, the animal will not grow or perform normally.

These differences in the amino acid makeup of the proteins are one of the factors that determine the quality of the protein. A protein which contains the essential amino acids is of higher biological or feeding value (quality) than one of the same total protein content, but in which one or more of the indispensable amino acids are lacking.

A factor which affects the quality or worth of a protein supplement is the digestibility of the protein in the supplement or the feed. Proteins are not all equally digestible. Accordingly, a supplement or feed in which 85 per cent of the protein is digestible (made available) is worth more than a supplement in which only 70 per cent of the protein is digestible.

### Effect of Manufacture

The method of manufacture as well as the kind of raw material used in the manufacture or processing are factors which can and do affect the quality or value of the finished product. In general, excessively high temperatures tend to lower the protein value of a feed without affecting the amount of total protein present. The high temperatures not only decrease the digestibility but also lower the feeding value of the proteins. Furthermore, long continued exposure to high temperatures tend to lower the vitamin content.

In certain instances, as in processing of soybeans, application of a certain amount of heat actually proves beneficial. Experimental work has shown that soybean meal subjected to a temperature to give it a mild roasted or nutlike flavor is of greater feeding value for pigs and chickens than a similar raw-tasting meal produced at a lower temperature.

The nature of the raw material processed also affects the final quality. For example, meat scraps, made primarily from cracklings or connective tissue, do not possess as high a feeding value with respect to protein and vitamin G as a product which includes some muscle meat and glandular tissues, even though the chemical analysis of the two products is the same.

The Miller Publishing Co., Minneapolis, Minn.
(Feedstuffs, December 17, 1938)

### Color Not a True Guide

Quality is also a factor in the vitamin field. The value of an alfalfa meal cannot be judged entirely on the basis of its protein and fiber content nor on the basis of color.

It is possible for an alfalfa meal to be high in protein and low in fiber and contain only 50 per cent as much vitamin G as another meal of similar chemical analysis. Furthermore, an alfalfa meal may be of good color and yet be lower in carotene (provitamin A) than its color would suggest. The true value of the product depends upon its vitamin as well as its protein and fiber content.

The quality or value of fish oils for feeding depends upon their vitamin A and D content. The vitamin potency of the oil bears no relation to the color, odor or chemical characteristics of the oil. Because a feed smells strongly of fish oils is no guaranty that it contains adequate vitamin A and D potency.

The use of one or two quality ingredients in a feed or ration does not make a quality product.

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## *Quick Cooling and Moisture Needed*

❝ To help keep that fresh flavor and to preserve the original good candling qualities, which mean more money for more top quality eggs, we urge quick cooling out of the natural animal heat, and holding your eggs in a room that has plenty of moisture. One member checked the moisture in his egg room with a humidity guage. It read 46 per cent relative humidity. After sprinkling down the floor the reading increased to 60 per cent. We here at the Auction endeavor to always keep the humidity at least 60 per cent in the winter; in the summer it sometimes is as high as 90 per cent.

—Wooster (Ohio) Egg Auction News.

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❝ IN a Jersey City apartment, an 18-pound turkey which was being fattened for Thanksgiving got out of the orange crate in which it was being kept, routed the housewife and her daughter, swooped from room to room, knocking down dishes and pans, and was finally captured in a bedroom by a policeman who had been called. Original cost of turkey, $5.94; cost of feed, 30 cents; damage to apartment, $50.

❝ THE PALMER HOUSE, one of Chicago's famous old hotels, serves 4,000 chickens every week in its dining room, according to Alec Wath, fowl butcher for the hotel.

—Poultry Supply Dealer, December 1938.

# How "Thick Whites" Get That Way

By Sylvia Hawthorne

*Condensed from Poultry Item*

A HEN'S ability to lay eggs with thick albumen, valued by producers and consumers alike, can be inherited, according to experiments recently completed at the National Agricultural Research Center at Beltsville, Maryland.

The experiments, which were conducted over a period of seven years, showed that a hen's ability to lay eggs containing a high percentage of thick white was an inherited tendency and that neither the number of eggs produced nor the weight of the eggs had any significant effect upon the percentage of thick albumen in freshly-laid eggs. A logical conclusion, says Dr. C. W. Knox of the Agriculture Department's research staff, is that producers may build up flocks which will produce the best eggs by breeding from hens that lay many large eggs containing high percentages of thick white.

### Some Better Than Others

Dr. Knox and his associates found that the average fresh egg contains from 50 to 52 per cent thick white. They bred two flocks of hens. One flock produced eggs having an average thick white percentage of 68 per cent while the other flock produced eggs with an average of 45 per cent. The percentage of thick white is continuing to increase in the first flock but the second flock apparently has reached its peak.

### 3,000 Eggs Broken Out

All of the eggs from a flock of 27 Rhode Island Red pullets were broken from the time of their first egg, October 1, 1932, to November 1, 1933, a 56-week period. In all, 2,928 eggs were broken. This test was not applied to eggs laid Saturday afternoons, Sundays or holidays. Data was assembled for the individual pullets laying the eggs and records were carefully kept of total egg production, the egg's weight, weight of the total albumen, weight of thick albumen, and the percentage of thick albumen. The eggs always were examined within a few hours after they were laid.

The variation of the percentage of thick albumen among eggs from different hens was much greater than from the same hen. This apparently demonstrates, says Dr. Knox, that the difference is due to the individual hen rather than to feeding conditions, temperature, or care.

### Thick White Is Seasonal

A steady decrease in the amount of thick albumen occurs from October and November down to the lowest point in June when it starts to rise again. This is not due to temperature apparently, for Beltsville is cooler in June than in July or August. Nor is it due to egg production or egg weight, as these reach their peak earlier in the season.

The same method of experimentation was used with a flock of 14 yearlings and other Rhode Island Reds in 1933 and 1934, while a group of 20 yearlings were used from 1934 to 1935. It was found that practically the same trend was followed by the hens as that followed by the pullets except that the hens showed a higher percentage of thick white. This makes it apparent that the decrease in percentage of thick albumen was not due to age, but that age might be one reason why hens' eggs contain a higher percentage of thick white.

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(The Poultry Item, December, 1938)

According to Dr. Knox, there is no definite indication that there is any relation between feed and the production of eggs containing a high percentage of thick white. A shortage of feed will eventually stop production of eggs but the small eggs laid before production stops entirely contain as high a percentage of thick white as normal feeding produces.

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## *Egg Premiums Based on Hatchability*

For many years, low hatchability has worked a hardship on hatcherymen, and it has required a great deal of educational work on the part of hatcherymen to get their flock owners to use methods to increase hatchability of the hatching eggs they bring in.

The International Baby Chick Association has contacted many hatcheries on paying the premiums according to hatchability, and the following tables have been worked out as a basic schedule for medium grades of breeding flocks, by one of them:

**Leghorn Premiums**

| | |
|---|---|
| Less than 40% | None |
| 40 to 50 | 6¢ |
| 50 to 60 | 8¢ |
| 60 to 70 | 9¢ |
| 70 to 75 | 10¢ |
| 75 to 80 | 11¢ |
| 80 and over | 12¢ |

**Heavy Premiums**

| | |
|---|---|
| Less than 40% | None |
| 40 to 50 | 5¢ |
| 50 to 60 | 7¢ |
| 60 to 70 | 8¢ |
| 70 to 75 | 9¢ |
| 75 and over | 10¢ |

The experience of one hatchery shows that from 1935 to 1938, the payment of premiums based upon the above schedule increased hatchability from 69 per cent in 1935 to 71.8 per cent in 1938.

—International Baby Chick News, Dec. 1, 1938.

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¶ HARRY LINN, Iowa's new assistant secretary of agriculture, was flabbergasted when at a dinner given in his honor on Dec. 27, he opened an untampered chicken egg and extracted a message of good wishes, written on onion skin paper by his hosts.

The message was inserted in the egg sac in a hen's body at Iowa State College under the direction of Professors R. E. Phillips Jr. and H. L. Wilcke, and was brought to the dinner by Professor H. H. Kildee, dean of agriculture.

Because of uncertainty that any one hen would cooperate, three messages were written and three hens used for the experiment. Rolls of paper were inserted in tiny balloons, which were substituted for the yolk of the egg in each hen's body. The hens suffered no injury.

# Gizzard Erosion in Chicks

By H. J. Almquist
University of California, Berkeley, Calif.

*Condensed from a Paper*

A DISORDER of the gizzard lining of young chicks, involving a roughening or erosion, which frequently causes distinct ulcer-like lesions, has been commonly observed in chicks reared under commercial conditions and in chicks fed certain experimental rations during nutritional research studies. These erosions or lesions are often accompanied by a dark discoloration.

Where seen in the field, the disease has often seemed to be associated with poor chick development. It has been a temptation, therefore, to jump to the conclusion that the observed gizzard erosions were the cause of the poor development of the chicks. Gizzard erosions have been used as sales arguments for influencing the poultryman to try a new brand of feed or to buy somebody's patent medicine for his chicks. They have also been taken as proof of the presence of mycosis, a disease due to a microorganism.

Under laboratory conditions, where other adverse or complicating factors and infectious diseases can be either controlled or excluded, severe gizzard erosions have been produced without effect on rate of growth, health or mortality. These observations are consistent with the fact that the gizzard is a dispensable organ, that is, it can be removed entirely and the chicken is not handicapped, except for some lack of efficiency in utilizing coarse feeds. A gizzardless chicken given a well-ground diet is every bit as well off as one which has its gizzard. The gizzard plays no important part in the digestion or absorption of feed, only a mechanical role as a grinding organ. Hence, erosions of the gizzard lining could not be expected to be a serious condition.

The erosions which develop in chicks fed certain experimental rations do so because the diet lacks what has been called the "gizzard factor." It is further known that adding the common bile component, cholic acid, to these experimental rations will entirely prevent erosions of the gizzard lining. On these experimental rations, chicks contain only subnormal amounts of bile unless the diet is supplemented with either cholic acid or the gizzard factor. Thus, the erosions have been definitely linked with decreased formation and secretion of bile in the chick. It is very probable that the gizzard factor is a substance needed by the chick for the formation of bile acids.

### Ration Seldom Deficient

Most practical rations containing wheat bran and dried alfalfa are sufficiently well supplied with the gizzard factor. Chicks fed such rations in our tests have developed only very slight indications of gizzard erosions in an occasional individual. This has been true even when the feed was one which apparently permitted severe erosions in a particular instance.

While lack of a rich supply of the gizzard factor may be a contributing cause of erosions in chicks under commercial conditions, it is more likely that some other adverse factor inhibiting bile formation and flow in the chick is a more important cause of erosions. Among such adverse factors may be suggested, lack of adequate feeding space, poor ventilation, chilling or overheating, contagious disease, or a variety of other factors any of which tend to make a poorly developed chick. Under such conditions, erosions of the gizzard lining are likely to be initiated or aggravated, especially in the more severely affected chicks.

The most accurate viewpoint on gizzard erosions in commercial chicks is evidently that such erosions are indications that something is certainly wrong with the chick, its diet, or its environment. The erosion itself is not a cause but an effect of poor chick development, and the investigation of such poor development should not stop with the detection of gizzard erosions but should proceed until the real source of the difficulty is discovered.

Presented at 4th Annual Meeting of the California Poultry Improvement Association, Berkeley, Calif., October 13-14, 1938

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## *Wanamaker's on Fried Chicken and Roast Turkey*

OUR chickens are heavy-weights without the muscle. Never, from the day they break their shells at Fair Acres Farm, do they move from comfortable nests. They eat corn and milk, relax and grow plump without a tough inch on their frames. The half that we serve you is almost as much as a whole ordinary "run-around chicken." We fry them to a tender, delicate brown, serve them with new peas, potatoes, whipped and flecked with pungent parsley, and cranberry conserve—for the sweet that always goes with bird.

JOHN WANAMAKER'S old-fashioned "turn of the century" Christmas is seeking to recapture the fine old ample days in America. In the old ample days, America ate well. Wanamaker's is featuring fine old-fashioned expansive meals (we said expansive— not expensive). Tonight's $1.25 dinner features roast turkey. And what turkeys! Big plump birds that battened and fattened sitting still on buttermilk. They're broad of beam, short of wing and leg, with mountains of white meat! And giblet gravy—scarcely a fleck of flour in it—thickened by virtue of chopped up livers and gizzards and hearts.

—Newspaper advertisements of John Wanamaker's, New York department store.

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BULGARIA has long recognized the value of the hen. There is an ancient saying there: "The leva (dollar) rests on the wings of the hen." In an effort to boost its poultry industry, Bulgaria has issued a new postage stamp bearing the picture of two hens. The hens modeling for the stamp were a White Leghorn and a Rhode Island Red from stock donated to Bulgaria by Mt. Hope Farms, Massachusetts.

AFTER you have selected your turkeys, don't let the butcher cut away the wing tips. For if the tips remain, you can lock them behind the turkey's back after stuffing. And then the bird can hold its place in the platter, resting on its wings and tail. That will prevent it from rocking in the platter or suddenly flying off into space when carved.

—From radio talk by Howard C. Pierce, A & P Tea Co.

# Trade Practice Rules for the Baby Chick Industry

*Promulgated and Released on December 31, 1938*
*by the Federal Trade Commission*

THESE rules promulgated by the Commission are designed to foster and promote fair competitive conditions in the interest of the industry and the public. They are not to be used, directly or indirectly, as part of or in connection with any combination or agreement to fix prices, or for the suppression of competition, or otherwise to unreasonably restrain trade.

## GROUP I

The unfair trade practices which are embraced in these Group I rules are considered to be unfair methods of competition, unfair or deceptive acts or practices, or other illegal practices, prohibited, within the purview of the Federal Government, by acts of Congress, as construed in the decisions of the Federal Trade Commission or the courts; and appropriate proceedings in the public interest will be taken by the Commission to prevent the use, by any person, partnership, corporation or other organization, of such unlawful practices in or directly affecting interstate commerce.

**Definition:** The term "baby chicks" as used in these rules shall be understood as including turkey poults, goslings, ducklings, or other live young poultry to be raised for breeding purposes or for the production of eggs and other poultry products.

### Rule 1—Misrepresentation of Products:

It is an unfair trade practice, in the course of or in connection with the offering for sale, sale or distribution of baby chicks, to make or publish, or cause to be made or published, directly or indirectly, any false, misleading or deceptive statement or representation (whether in the form of advertisement, guarantee, warranty, testimonial, endorsement, depiction, illustration, or other form of representation, however disseminated or published):

(a) Concerning the grade, quality, quantity, breed, pedigree, type, sex, sexing, quick maturity, uniform development, character, nature, origin, weight, color or size of such baby chicks; or

(b) Concerning the production, sale or distribution of any such baby chicks; or

(c) Concerning the purported supervision, endorsement or approval of any poultry breeding, hatching or other operation by Federal, State or other authority; or

(d) Concerning any other matter in relation to such baby chicks.

### Rule 2—Deceptive Concealment of Material Facts:

In advertising, offering for sale or selling baby chicks, it is an unfair trade practice for any member of the industry to conceal or fail or refuse to disclose any material facts for the purpose or with the effect of thereby misleading or deceiving purchasers, as for example:

(a) Filling baby chick orders with cockerels which have been obtained from sexed chicks or from other sources without having disclosed to the purchaser at the time of sale the fact that the baby chicks delivered are cockerels;

(b) Adding surplus cockerel chicks to so-called "straight-run" chicks and offering for sale, selling or delivering same to customers without informing the respective purchasers of the fact that such surplus or added cockerels have been included and without obtaining such purchasers' consent thereto.

### Rule 3—(a) Misuse of Words "Guaranteed to Live," Etc.; (b) Use of Deceptive Guarantees as to Livability of Baby Chicks, Etc.:

(a) It is an unfair trade practice to advertise, guarantee, describe or otherwise represent that baby chicks sold or offered for sale are "guaranteed to live," or to make similar statements or representations, with the purpose or with the tendency and capacity or effect of misleading or deceiving purchasers or prospective purchasers into the erroneous belief that the said baby chicks possess extraordinary stamina or other qualities which prevent disease or death.

(b) It is an unfair trade practice to make or publish, or cause to be made or published, directly or indirectly, any false, misleading or deceptive statement, guarantee, warranty or other representation concerning the livability, health or stamina of baby chicks sold or offered for sale.

### Rule 4 — Misrepresentation as to Yields of Eggs:

It is an unfair trade practice to advertise, guarantee, describe or otherwise represent, directly or indirectly, that very high yields of eggs are received from all flocks of a particular seller or producer when such is not the fact, or when such statement or representation is true only as to a small percentage or proportion of his flocks.

### Rule 5 — Misrepresentation as to Blood Testing, Etc.:

(a) It is an unfair trade practice to advertise, guarantee, describe or otherwise represent, directly or indirectly, that all baby chicks or other poultry sold or offered for sale have been blood tested, pullorum tested, vaccinated, inoculated, or otherwise treated for any disease when such is not the fact, or when only a portion of the flocks supplying the eggs have been so treated or tested during the current season.

(b) It is an unfair trade practice to use any disease control term such as "pullorum tested," "blood tested," or the like, in advertising or otherwise, in such manner as to have the tendency and capacity or effect of misleading or deceiving purchasers or prospective purchasers into the belief that officially approved methods have been used in making these tests when such is not the fact.

### Rule 6 — Deceptive Substitution of Inferior Chicks For Those Ordered:

It is an unfair trade practice to advertise, guarantee, describe or otherwise represent that the flocks of a particular seller or producer possess certain good qualities, such as ability to resist disease or to produce high yields of eggs, or the like, and then upon receipt of customers' orders for baby chicks from the flocks advertised, filling same from flocks of an inferior quality, without informing the purchasers of such substitution.

### Rule 7—Deceptive Sale of Chicks at Purported Bargain Prices:

It is an unfair trade practice to sell or offer to sell baby chicks of poor grade or quality at so-called "bargain prices" or at any other prices, through advertisements or otherwise, from a farm or hatchery advertised or bearing a reputation for high grade production, without informing purchasers or prospective purchasers as to the poor grade or quality of such chicks and with the tendency and capacity or effect of thereby misleading or deceiving them into the erroneous belief that they are receiving a bargain when such is not the fact.

### Rule 8 — Misrepresentation as to Egg Production Qualities of Poultry:

In the case of a producer of baby chicks mating with his flocks a limited number of males having a record for transmitting high egg production qualities while mating therewith other males having no such record, it is an unfair trade practice to offer baby chicks for sale from his flocks, through advertising or otherwise, in such manner as to have the tendency and capacity or effect of misleading or deceiving purchasers or prospective purchasers into the belief that all of such chicks possess the same high egg production qualities as the said males of high pedigree, or that such flocks have been mated exclusively with males having a record for transmitting high egg production qualities, when such is not the fact.

### Rule 9—Deceptive Use of "Leaders":

It is an unfair trade practice to offer for sale, advertise or otherwise represent baby chicks as being of a certain high grade or quality, offered at claimed "bargain prices" and under circumstances which have the capacity and tendency or effect of misleading or deceiving purchasers or prospective purchasers into the belief that an adequate supply of such chicks is available to purchasers at such prices, or that all chicks so offered for sale or sold under such representations and conditions are of the same high grade or quality, when such is not true in fact.

### Rule 10—Misuse of Words "Hatchery," "Chickery," "Chick Nursery," "Farm," "Poultry Farm," "Breeding Farm," "Incubators," Etc.:

(a) It is an unfair trade practice for any person, partnership or corporation by trade or corporate name, through advertising or otherwise, to hold himself or itself out as owning or operating a hatchery, chickery, chick nursery, farm, poultry farm, breeding farm, incubators, or the like, when such is not the fact.

(b) In the sale or offering for sale of baby chicks, through advertising or otherwise, it is an unfair trade practice for any person, partnership or corporation to represent that such chicks have been produced by the said person, partnership or corporation, or have been produced under certain conditions, when such is not the fact.

### Rule 11—Deceptive Guarantees or Representations as to Percentage of Chicks Alive at Buyer's Destination:

It is an unfair trade practice to make false, misleading or deceptive guarantees, warranties, or other representations to the effect that a certain percentage of the chicks shipped will be alive at buyer's destination, and then fail to adjust losses pursuant to representations made, with the purpose or with the tendency and capacity or effect of misleading or deceiving purchasers or prospective purchasers.

### Rule 12 — Misrepresenting Chicks Sold at Auction, Through Shipment to Fictitious Consignees, Through Agents, Salesmen or Dealers, Etc.:

It is an unfair trade practice to cause baby chicks to be sold under deceptive or misleading conditions, at auction sales, through shipment to fictitious consignees, or through agents, salesmen, dealers, or otherwise, whether by means of false, misleading or deceptive statements or representations or by means of deceptive concealment of material facts.

### Rule 13—Deceptive Testimonials:

It is an unfair trade practice for any member of the industry to publish or use misleading or deceptive testimonials regarding exceptional results alleged to have been obtained by buyers of his chicks, which testimonials are so worded as to have the tendency and capacity or effect of inducing purchasers or prospective purchasers to believe that all of such member's chicks may be expected to produce similar results for all buyers when such is not the fact.

### Rule 14—Misuse of word "Free":

The use of the word "free," or the equivalent thereof, where not properly or fairly qualified when the article is in fact not free, with the tendency or capacity to mislead or deceive purchasers or prospective purchasers, is an unfair trade practice.

### Rule 15—Misrepresenting Chicks as from Stock Entered in Egg-Laying Contests or Poultry Shows, Etc.:

It is an unfair trade practice to advertise, guarantee, describe or otherwise represent that baby chicks sold or offered for sale are from, or are closely related to, stock entered in egg-laying contests or poultry shows, or the like, when such is not the fact.

### Rule 16—Misuse of Terms "Trapnest," "Trapped," Etc.:

It is an unfair trade practice to use the terms "trapnest," "trapped," or the like, in such manner as to have the tendency and capacity or effect of misleading or deceiving purchasers or prospective purchasers into the belief that all baby chicks sold or offered for sale are hatched from eggs produced by hens that are actually being trapped, or have been trapped for at least one year, when such is not the fact.

### Rule 17—Deceptive Depictions:

It is an unfair trade practice to use photographs, cuts, engravings, illustrations, or pictorial or other depictions or devices, in catalogues, sales literature or advertisements, or otherwise, in such manner as to have the capacity and tendency or effect of misleading or deceiving purchasers or prospective purchasers as to the size, importance or location of the premises occupied by a member of the industry, as to such member's equipment, as to his breeding flocks or poultry products, or as to any phase of his poultry hatching, breeding, or other operations.

### Rule 18—Deceptive Representations as to Earnings, Etc.:

It is an unfair trade practice to make false, misleading or deceptive statements or representations regarding opportunities for making money or actual or probable earnings of agents or dealers handling hatching eggs, baby chicks or other poultry, or of purchasers raising baby chicks or other poultry, which products are being offered for sale or sold by a member of the industry.

### Rule 19—Deception as to Transportation Charges:

(a) It is an unfair trade practice to sell or offer to sell baby chicks, through advertising or otherwise, in such manner as to mislead or deceive purchasers or prospective purchasers into the belief that the prices quoted for such chicks are the prepaid or delivered prices when such is not the fact.

(b) It is an unfair trade practice, by failing correctly to inform customers or by other deception, to cause purchasers to believe that transportation costs will not be charged against them in C. O. D. charges or otherwise, when such is not true in fact.

### Rule 20—Publishing or Circulating of False or Misleading Price Quotations, Price Lists, Etc.:

The publishing or circulating by any member of the industry of false or misleading price quotations, price lists, terms or conditions of sale, with the tendency and capacity or effect of misleading or deceiving purchasers or prospective purchasers, is an unfair trade practice.

### Rule 21—Misrepresenting Offer as "Special":

It is an unfair trade practice to represent an offer as "special" when it is in fact a "regular" offer.

### Rule 22—Fictitious Prices:

Offering baby chicks for sale at prices purported to be reduced from what are in fact fictitious prices, or offering such chicks for sale at a purported reduction in price when such purported reduction is in fact fictitious, with the tendency and capacity or effect of misleading or deceiving purchasers or prospective purchasers, is an unfair trade practice.

### Rule 23—Misrepresenting Offer as Limited to Time, Etc.:

It is an unfair trade practice to represent an offer to be limited as to time or otherwise when such is not the fact.

### Rule 24—Bogus Independents:

It is an unfair trade practice to sell or offer to sell industry products through a pretended independent concern in such manner as to mislead or deceive purchasers or prospective purchasers into the erroneous belief that such concern is independent and in competition with that member of the industry owning or controlling such concern.

### Rule 25—Schemes Involving Lottery, Misrepresentation or Fraud:

The offering or giving of prizes, premiums or gifts in connection with the sale of industry products or as an inducement thereto by any scheme which involves lottery, misrepresentation or fraud, is an unfair trade practice.

### Rule 26 — Misuse of Word "Guarantee," Etc.:

It is an unfair trade practice to use the word "guarantee," or any other word, expression or representation of similar import, in such manner as to have the tendency and capacity or effect of misleading or deceiving purchasers or prospective purchasers.

### Rule 27 — Defamation of Competitors or Disparagement of Their Products:

The defamation of competitors by falsely imputing to them dishonorable conduct, inability to perform contracts, questionable credit standing, or by other false representations, or the false disparagement of the grade, quality or manufacture of the products of competitors, or of their business methods, selling prices, values, credit terms, policies or services, is an unfair trade practice.

### Rule 28—"Loss Leaders":

The practice of selling any product of the industry below the seller's cost as a "loss leader" to induce the purchase of any other product of the industry, the sale of the latter being used to recoup the loss sustained on the "loss leader" product so sold, with the tendency or capacity to mislead or deceive purchasers or prospective purchasers, is an unfair trade practice.

### Rule 29—Inducing Breach of Contract:

Inducing or attempting to induce the breach of existing lawful contracts between competitors and their customers or their suppliers by any false or deceptive means whatsoever, or interfering with or obstructing the performance of any such contractual duties or services by any such means, with the purpose and effect of unduly hampering, injuring or prejudicing competitors in their businesses, is an unfair trade practice.

### Rule 30—Enticing Away the Employees of Competitors:

Wilfully enticing away the employees of competitors, with the purpose and effect of unduly hampering, injuring or prejudicing competitors in their businesses, is an unfair trade practice.

### Rule 31—Espionage:

The securing of information from competitors concerning their businesses by false or misleading statements or representations or by false impersonation of one in authority and the wrongful use thereof to unduly hinder or stifle the competition of such competitors is an unfair trade practice.

### Rule 32—Coercing Purchase of One Product as a Prerequisite to the Purchase of Other Products:

The practice of coercing the purchase of one or more products as a prerequisite to the purchase of one or more other products where the effect may be to substantially lessen competition or tend to create a monopoly or to unreasonably restrain trade is an unfair trade practice.

### Rule 33—Consignment Selling:

It is an unfair trade practice for any member of the industry to use the practice of shipping goods to dealers or distributors on consignment or pretended consignment for the purpose and with the effect of artificially clogging trade outlets and unduly restricting competitors' use of said trade outlets in getting their goods to consumers through regular channels of distribution, or with such purpose to entirely close said trade outlets to such competitors so as to substantially lessen competition or tend to create a monopoly or to unreasonably restrain trade; provided, however, that nothing herein shall be construed or used as restricting or preventing consignment shipping or marketing of commodities in good faith, and without artificial interference with competitors' use of the usual channels of distribution in such manner as thereby to suppress competition or restrain trade.

### Rule 34—Selling Below Cost:

The selling or offering for sale of baby chicks or "started chicks" below the seller's cost with the intent and with the effect of injuring a competitor and where the effect may be to substantially lessen competition or tend to create a monopoly or unreasonably restrain trade is an unfair trade practice; all elements recognized by good accounting practice as proper elements of such cost shall be included in determining cost under this rule.

### Rule 35:

(a) **Prohibited Discriminatory Prices, or Rebates, Refunds, Discounts, Credits, Etc. Which Effect Unlawful Price Discrimination.** It is an unfair trade practice for any member of the industry engaged in commerce, in the course of such commerce, to grant or allow, secretly or openly, directly or indirectly, any rebate, refund, discount, credit, or other form of price differential, where such rebate, refund, discount, credit, or other form of price differential effects a discrimination in price between different purchasers of goods of like grade and quality, where either or any of the purchases involved therein are in commerce, and where the effect thereof may be substantially to lessen competition or tend to create a monopoly in any line of commerce, or to injure, destroy, or prevent competition with any person who either grants or knowingly receives the benefit of such discrimination or with customers of either of them:

**Provided, however—**

(1) That the goods involved in any such transaction are sold for use, consumption, or resale within any place under the jurisdiction of the United States;

(2) That nothing herein contained shall prevent differentials which make only due allowance for differences in the cost of manufacture, sale, or delivery resulting from the differing methods or quantities in which such commodities are to such purchasers sold or delivered;

(3) That nothing herein contained shall prevent persons engaged in selling goods, wares, or merchandise in commerce from selecting their own customers in bona fide transactions and not in restraint of trade;

(4) That nothing herein contained shall prevent price changes from time to time where made in response to changing conditions affecting either (a) the market for the goods concerned, or (b) the marketability of the goods, such as, but not limited to, actual or imminent deterioration of perishable goods, obsolescence of seasonal goods, distress sales under court process, or sales in good faith in discontinuance of business in the goods concerned.

(b) **Prohibited Brokerage and Commissions.** It is an unfair trade practice for any member of the industry engaged in commerce, in the course of such commerce, to pay or grant, or to receive or accept, anything of value as a commission, brokerage, or other compensation, or any allowance or discount in lieu thereof; except for services rendered in connection with the sale or purchase of goods, wares, or merchandise, either to the other party to such transaction or to an agent, representative, or other intermediary therein where such intermediary is acting in fact for or in behalf, or is subject to the direct or indirect control, of any party to such transaction other than the person by whom such compensation is so granted or paid.

(c) **Prohibited Advertising or Promotional Allowances, Etc.** It is an unfair trade practice for any member of the industry engaged in commerce to pay or contract for the payment of advertising or promotional allowances or any other thing of value to or for the benefit of a customer of such member in the course of such commerce as compensation or in consideration for any services or facilities furnished by or through such customer in connection with the processing, handling, sale, or offering for sale of any products or commodities manufactured, sold, or offered for sale by such member, unless such payment or consideration is available on proportionally equal terms to all other customers competing in the distribution of such products or commodities.

(d) **Prohibited Discriminatory Services or Facilities.** It is an unfair trade practice for any member of the industry engaged in commerce to discriminate in favor of one purchaser against another purchaser or purchasers of a commodity bought for resale, with or without processing, by contracting to furnish or by furnishing, or by contributing to the furnishing of, any services or facilities connected with the processing, handling, sale or offering for sale of such commodity so purchased upon terms not accorded to all purchasers on proportionally equal terms.

(e) **Illegal Price Discrimination.** It is an unfair trade practice for any member of the industry or other person engaged in commerce, in the course of such commerce, to discriminate in price in any other respect contrary to Section 2 of the Clayton Act as amended by the Act of Congress approved June 19, 1936 (Public No. 692, 74th Congress), or knowingly to induce or receive a discrimination in price which is prohibited by such section as amended.

### Rule 36—Aiding or abetting use of unfair trade practices:

For any member of the industry knowingly to aid or abet another member, or any other person, firm or corporation, in the use of unfair trade practices, is an unfair trade practice.

## GROUP II

The trade practices embraced in Group II rules do not, **per se**, constitute violations of law. They are considered by the industry either to be unethical, uneconomical or otherwise objectionable; or to be conducive to sound business methods which the industry desires to encourage and promote. Such rules, when they conform to the above specifications and are not violative of law, will be received by the Commission, but the observance of said rules must depend upon and be accomplished through the cooperation of the members of the industry concerned, exercised in accordance with existing law. Where, however, such practices are used in such manner as to become unfair methods of competition in commerce or a violation of any law over which the Commission has jurisdiction, appropriate proceedings will be instituted by the Commission as in the case of violation of Group I rules.

**Rule A:**

The industry condemns the practice of disposing of baby chicks by shipping them to fictitious consignees or without an order or other consent of the consignee, necessitating the sale of such undeliverable shipments at public auction by agents of the common carrier in order to secure payment for transportation costs. Such practice is deemed by the industry to be harmful to the chicks and to facilitate the spread of disease.

**Rule B:**

The industry condemns the practice of failing to give proper notice to purchasers of baby chicks of any change in the shipping schedule of an order thereby causing inconvenience and loss to purchasers.

**Rule C:**

The industry condemns the practice of failing to ship baby chicks to customers as promptly as has been agreed upon, which practice frequently results in injury to the chicks and inconvenience and loss to customers.

**Rule D:**

The industry approves the practice of handling business disputes between members of the industry and their customers in a fair and reasonable manner, coupled with a spirit of moderation and good will, and every effort should be made by the disputants themselves to compose their differences. If unable to do so they should, if possible, submit these disputes to arbitration.

**Rule E:**

Lawful contracts are business obligations which should be performed in letter and in spirit. The repudiation of contracts by sellers on a rising market or by buyers on a declining market is condemned by the industry.

A Committee on Trade Practices is hereby created by the industry to cooperate with the Federal Trade Commission and to perform such acts as may be legal and proper to put these rules into effect.

❦ EIGHT pounds of boiled skinless and boneless turkey were stored in a special container built for this purpose in a refrigerator in the Hughes plane. Whenever food was wanted during flight the crew had turkey on rye bread. Each loaf of bread was sealed and wrapped so that it could remain dry until opened even though the ship went down in mid-ocean.

—Washcoegg, October 1938.

❦ ONE EGG in every 40 million may have three yolks. That's the way they figure it in the Butter and Egg Department of the American Stores Company. James Bruce, Manager of their warehouse in Orange, N. J., was shown a triple yolk egg recently by one of his candlers and he estimates that since the last one turned up two years ago and since they sort 400,000 eggs a week, it means one in 40 million.

—Poultry Item, December, 1938.

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# POULTRY RESEARCH

## Vitamin E and Fowl Paralysis

Vitamin E and its effect on fowl paralysis was the subject of study by te Hennepe, Secretary of the European Section of the International Poultry Science Association. His work shows no relationship between vitamin E and fowl paralysis.

—Carl H. Schroeder in Everybodys Poultry Magazine for December, 1938.

## Effect of Wheat Germ Oil on Paralyzed Birds

The addition of wheat germ oil to poultry feeds solely to cure or prevent fowl paralysis and related diseases can not be recommended, according to tests by R. K. Cole at the Cornell University poultry department.

To determine if wheat germ oil could cure cases of fowl paralysis, a group of birds with the symptoms of the disease was either fed or injected with wheat germ oil. The results, when compared with other affected but untreated birds, showed that the wheat germ oil had no curative effect on the disease.

—News Release from Cornell University.

## Hopper Feeding Grains

In further Michigan trials, the continuous hopper feeding of corn and wheat was compared with litter feeding (hand-fed at 4 p. m. daily) of the grains to laying pullets of the White Leghorn and Rhode Island Red breeds. The trial extended over a 10-month period. A satisfactory mash was fed, and oats, ground poultry bone, and oyster shell were continuously available in separate hoppers.

The percentage mortality and average egg production of each breed was very similar under the two feeding methods. In each breed, the groups with constant access to grain consumed more grain and less mash than the litter-fed groups. The consumption of oats by White Leghorns was approximately the same under the two methods, but the litter-fed Rhode Island Reds consumed considerably more oats than the hopper-fed birds. The hopper feeding of grain is considered most satisfactory, although it complicated the supplying of sufficient vitamin D and also required more hopper space. It is suggested that pullets fed in this manner should have been raised by hopper feeding during the growing period.

—Feedstuffs, Dec. 31, 1938.

## No Relation Between Vitamin A Storage in Liver and Mortality

The relation between vitamin A storage in the liver and mortality due to paralysis, leukemia, gout, cholera, blackhead, coccidiosis and laryngo-tracheitis has been reported in Poultry Science (Vol. 17, No. 6) by Chichester, Russell and Hudson of the New Jersey Experiment Station. No significant relationship could be detected, a finding which is of interest in view of the theory sometimes advanced that a relationship might exist between the susceptibility to these diseases and the vitamin A intake.

It was also concluded that some individuals have the ability to utilize vitamin A in such a way that it does not appear in the liver in appreciable amounts. Hence, a low liver storage of vitamin A does not necessarily indicate an inadequate intake of this factor or its precursor.

—Carl H. Schroeder in Everybodys Poultry Magazine for December, 1938.

## Vitamin A Non-Toxic

Vitamin A is non-toxic, probably so even when given in excessive doses. Working with rats, Vedder and Rosenberg of the George Washington University found that vitamin A in such large amounts is destroyed in the body. The toxicity of some fish liver oils is due to a principle at present not identified. This toxicity can be partially counteracted by vitamin D and can be almost completely overcome by vitamin C. Vitamin B1 has no effect on toxicity. These observations, published in the Journal of Nutrition, are an interesting example of the interaction of different vitamins.

—Carl H. Schroeder in Everybodys Poultry Magazine for December, 1938.

## Grain-less Laying Ration

A grain-less ration for layers was subjected to tests at the Bavarian Poultry Institute by Weinmiller and Mantel. The chief constituents of the ration were fish meal, beet pulp, potato flakes, bran and alfalfa meal. Fluid milk was before the birds at all times.

The test group on the grain-less ration made such a poor showing as regards production, appearance and physical condition, that after 13 weeks it was decided to feed 10 grams of corn per bird per day.

The group receiving 50 grams of corn daily per bird produced 151 eggs during the test period of 300 days; those on a 20 grams of corn per day laid 140 eggs, while the test lot which was changed to 10 grams of corn, as stated above, managed to make up for some of the "lost time" and finally had a production of 124 eggs to their credit.

The investigators conclude that profitable production can not be obtained on a grain-less ration and, by inference, that 30% of bran in the mash does not compensate for the absence of corn. The scarcity of grains for feeding purposes, prevailing in Germany, prompted this investigation.

—Carl H. Schroeder in Everybodys Poultry Magazine for January, 1939.

## Cocoa Shell Meal for Layers

Experiments with cocoa shell meal in the laying ration were conducted by A. Haensel at the Kiel-Steenbeck Experiment Station in Germany. The birds manifested a definite dislike for this material and, in spite of every effort to bolster up feed consumption, laid markedly fewer and smaller eggs than the check lot. Hatchability, too, was affected unfavorably.

—Carl H. Schroeder in Everybodys Poultry Magazine for January, 1939.

## Vitamin G Content of Alfalfa

The vitamin G content of different alfalfa hays has been appraised by Heiman, Carver and Cook of the Washington Experiment Station. Putting an arbitrary value of 100 on dried skimmilk, the vitamin G content of 10-inch hay was 50, of stems 30, of leaves 100, of 24-inch hay 40, of stems 30 and leaves 100.

—Carl H. Schroeder in Everybodys Poultry Magazine for December, 1938.

## Alfalfa and Plumage Color

An interesting relationship between feeding and feather quality has been reported recently on the basis of studies made at the Purdue Agricultural Experiment Station.

With certain deficient rations, plumage abnormalities were detected in Barred Plymouth Rock chicks at four weeks of age, when the first feathers replaced the original down. The abnormalities persisted and involved most of the feathers as the chicks grew.

The feathers appeared rough, were brittle, and were very poorly formed. There was a tendency for the barbs of the feathers to separate. In extreme cases, the back and body feathers somewhat resembled hair.

Pigmentation of the feathers was also affected. In females, there was almost complete absence of white barring, and in males there was almost complete absence of black barring. In most instances, the feathers were normally barred at the tips, indicating normal growth and coloration when the feathers first started, and while the chick still had some reserve of nutrients derived from the egg.

Of special interest was the fact that certain samples of alfalfa leaf meal, when used at a level of only 3 per cent of the ration, supplied the factor or factors necessary for normal feather structure and color. The exact nature of the factor or factors involved has not been determined.

—L. E. Card in Poultry Tribune for December, 1938.

## Oat Hulls and Cannibalism

The cannibalism preventing properties of oat hulls were investigated by Miller and Bearse of the Western Washington Experiment Station. They conclude that oat hulls contain a factor, other than minerals, which prevents cannibalism and that excessive corn feeding is conducive to cannibalism.

Although the evidence presented in Poultry Science (Vol. 17, No. 6) permits such an interpretation, no consideration is given to the fact that a single case of cannibalism due to chance or accident may usher in an epidemic-like outbreak of this vice and, consequently, distort the "evidence." As an illustration, in one of two pens on the high oats 80 per cent diet, 42 per cent of all birds were picked, in the other but 2.1 per cent. The results do not rule out the possibility or perhaps more correctly the probability that one of the causes of this social vice is to be found in the field of animal psychology.

—Carl H. Schroeder in Everybodys Poultry Magazine for January, 1939.

## Effect of Humidity on Hatching Results

Extensive observations at the National Agricultural Research Center, Beltsville, Md., have established quite accurately the effect of variations in relative humidity during incubation on the hatching percentage.

Using two different temperatures, 100 degrees F. and 102 degrees F., the relative humidity was varied under controlled conditions from 8 per cent to 87 per cent. During these tests, the oxygen content of the air was maintained at 21 per cent and the carbon dioxide content was kept below 0.5 per cent.

The effect of humidity was essentially the same at both incubating temperatures. The optimum relative humidity was almost exactly 60 per cent and as it varied in either direction the percentage hatch decreased, at first slowly and then more rapidly, until at 8 per cent relative humidity only 15 per cent of the fertile eggs hatched. Humidities within a range of 10 points either way from the optimum do not seriously affect hatching results, but small hatches and poor-quality chicks are to be expected at either high or low humidities.

Variation in humidity did not have much effect on either heat elimination or gaseous exchange in the developing embryos during the first 10 days, but did have a marked effect during the third week of incubation. Accurate control of humidity during the latter half of the incubation period seems, therefore, to be especially important.

—L. E. Card in Poultry Tribune for December, 1938.

## Culling and Progeny Test

Does culling affect the validity of the progeny test? This is an important question which is generally answered in the affirmative. For instance, Munro et al. stipulate that progeny flocks serving as test material must be maintained through the laying year without any culling whatever. Of course, it is costly practice to carry obviously worthless or sick birds through a full laying year.

Bird and Sinclair of the Central Experimental Farm at Ottawa, Ontario, addressed themselves to the task of checking into this question. They reached the conclusion that the lowest producers should be culled from all sire's progeny flocks, but such culling should be to one uniform percentage which probably should not exceed 25 per cent. They state that in practice this would operate in such a manner that culling would be permissible throughout the year. Culling should be confined to the lowest producers. Culling for egg size is not permissible.

—Carl H. Schroeder in Everybodys Poultry Magazine for January, 1939.

## Effect of Egg Weight Upon Weight of Chick

The weight of the egg influences the weight of the chick, but the extent to which chick weight depends upon egg weight is subject to seasonal variation. The influence of egg weight upon chick weight increases gradually from January to April, decreases from May to June. These cycles are attributed to changes in the metabolic activity and efficiency of the embryo and to variations in thyroid activity of the parent stock. These observations were recorded by N. Salpin in the Proceedings of the Royal Society of Edinburgh (Scotland).

—Carl H. Schroeder in Everybodys Poultry Magazine for January, 1939.

## Heat and Egg Quality

The practice of pre-heating eggs to permit the selection of infertiles by modern high-power candling devices prior to actual incubation prompted a study at the California Agricultural Experiment Station, to determine the loss in quality resulting from such treatment.

Eggs were measured on the basis of candling score, albumen height, yolk height, and size of air cell. The results showed that 15 hours of preheating reduced the candling score by 65 per cent, the albumen height by 21 per cent, the yolk height by 22 per cent, and increased the air cell size by 14 per cent.

Eggs which graded as U. S. Specials before pre-heating were no better than U. S. Standards after 15 hours of incubation. Examined before the candle, the pre-heated eggs showed a considerably darker yolk shadow and a somewhat larger air cell than specified in the grade of U. S. Standards.

—L. E. Card in Poultry Tribune for December, 1938.

## Top-Crossing

Top-crossing highly inbred males with average Leghorn females improved fertility, hatchability, as well as viability of chicks up to 24 weeks of age in tests conducted by Waters (Poultry Science, Vol. 17, No. 6) at the Iowa Experiment Station. Some inbred families seem to be better suited for top-crossing than others. The commercial value of top-crossings may not be unlike that of "hybrid corn" which is enjoying increasing popularity.

—Carl H. Schroeder in Everybodys Poultry Magazine for December, 1938.

## Pox May Cause Lesions on Feet of Turkeys

Pox in turkeys may cause lesions on feet. This observation by Brandley and Dunlap of the University of Illinois confirms similar observations by the author of this Department in a limited number of outbreaks in turkeys and, in a few cases, also in chicks.

—Carl H. Schroeder in Everybodys Poultry Magazine for December, 1938.

## Manure Production of Adult Turkeys

The manure production of adult turkeys amounts to about 2½ pounds of fresh manure per bird per week. Marsden of the U. S. Department of Agriculture, states that this is equivalent to approximately one pound of manure for every pound of feed consumed. One quarter of the manure was deposited at night while on the roost. Fresh manure contained 75 per cent water.

—Carl H. Schroeder in Everybodys Poultry Magazine for December, 1938.

## "Chick Pellagra" and Human Pellagra Differ

Nicotinic acid, which readily cures both human pellagra and blacktongue disease in dogs, will not cure the disease formerly known as "chick pellagra." This discovery was made by C. A. Elvehjem, H. A. Waisman, O. Mickelson and D. W. Wooly of the University of Wisconsin, and reported in Wisconsin Bulletin 442, "What's New in Farm Science."

To make the distinction clear between the diseases, the Wisconsin investigators call the chick disease chick dermatitis, and the substance which prevents it, the anti-dermatitis factor. This factor can be extracted from liver.

## High Protein for Turkeys

In 1935 turkey feeding studies were initiated to test the validity of the current belief that turkeys required a relatively expensive, high-protein diet (25 to 35 per cent) and that corn was an essential part of the grain and mash mixture fed to turkeys. Data obtained over a period of three years show quite conclusively that a high protein diet gives no better results either in weight or finish of turkeys up to 29 weeks of age than does a lower protein (17 to 20 per cent) diet. A marked increase in mortality resulted from the higher protein feeding. The study showed also that barley is equal in every way to yellow corn in the starting, growing or finishing ration of turkeys.

—Utah Bulletin 282, "Pioneering Western Agriculture."

## Curled Toes

The characteristic of this nutritional disease is just as its name implies—that the toes on one or both feet curl to the side, causing difficulty in walking and, consequently, slow growth.

Wisconsin Bulletin 442, "What's New in Farm Science," reports that R. W. Engel and P. H. Phillips, in working with this disease, have found that internally, the most pronounced abnormality is a swelling of the main nerve trunks, these becoming softened and puffed up to several times the normal size. The spinal cord usually shows a break down and changes in the cells. Tissue changes are largely confined to the nervous system, although there is some break down of muscle fibres.

This condition was prevented by including riboflavin (which is present in meat products and milk) in the chick ration.

## Slipped Tendons

An Iowa research study in poultry nutrition dealing with the effect of the levels and sources of protein and inorganic elements on slipped tendons in chicks and poults is contained in this official summary:

"Work with single grains in chick rations has been continued. Scabby barley carrying approximately 10% scab was found not to be detrimental to growth in chicks when the barley made up 76% of the ration. Growth in the barley lots was superior to that in the oat lots, but slipped tendons developed in the barley lots. No slipped tendons have been observed in chicks fed ground whole oats.

"When meat and bone meal, fish meal, soybean oil meal or corn gluten meal were used as protein supplements in the oat diets, poor growth was produced, but when 3% of liver meal was included in the diets, growth was satisfactory. This was apparently a vitamin G deficiency. Ground whole oats, hulled oats, wheat and combinations of wheat with hulled oats and oat hulls were compared from the standpoint of their effect on feathering in Barred Rock and Single Comb Rhode Island Reds.

"Ground hulled oats produced many more barebacks than the whole oats, wheat or combinations of wheat with hulled oats or oat hulls. The protein level in all of these diets was held at 16.5%. No mortality differences were noted for the various lots.

—Feedstuffs, Dec. 12, 1938.

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TEN thousand turkeys cake-walked down the avenue in Cuero, Texas, on Armistice Day, participating in that city's eighth Turkey Trot, the celebration which publicizes Cuero's turkeys. The two-mile parade, headed by the droves of turkeys, was the high-light of a three-day celebration.

The Turkey Trot, originated in 1912, was named after a famous dance of that period, and was suggested by the fact that many visitors came to Cuero each year to see the turkey raisers drive their birds to market. At that time, it was the custom of one large turkey raiser to purchase turkeys of his neighbors and drive the birds in a large drove of several thousand down the main street of Cuero.

—Turkey World, December, 1938.

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# Breeding for Shell Thickness

By L. W. Taylor and I. M. Lerner
University of California

*Condensed from News Release*

SHELL thickness and percentage of shell are of considerable importance both to commercial poultrymen and to hatcherymen. For the egg producer, the loss from breakage in handling and transportation due to weak shells, and the better keeping quality of thick-shelled eggs are of importance. The hatcheryman is interested in the problem through the relationship between proportion of shell and hatchability. At the California Station, the hatchability of fertile eggs from hens of a thick-shelled line was found to be 82.1 and 90.3 per cent in two successive years, while the hens from a thin-shelled line exhibited only 58.5 and 76.2 per cent hatchability in the corresponding years under the same conditions of incubation.

It is well recognized that maintenance of a strong shell is primarily a nutritional problem. Workers at the South Carolina Station have demonstrated that a negative calcium balance tends to be built up in the first months of production. Pullets have to draw on their calcium reserve since more calcium is used in the manufacture of egg shells than is being consumed. A sufficient supply of calcium is essential to make up the excess of outgo over intake during the early stages of laying. Furthermore, adequate amounts of vitamin D are necessary for the calcium supplied to be absorbed into the blood stream and utilized in egg formation. Recent evidence from Cornell also suggests that shell strength is related to the amount of manganese in the diet.

### Breeding Problem Also

The problem of shell thickness also has genetic implication. As early as 1928, Taylor and Martin, then both at the Kentucky Station, pointed out that there were both family differences within a breed and between breeds in percentage of shell. Since that time, individual differences between birds with respect to shell quality have been found. At the California Station, a study of inheritance of proportion of shell has been carried on for several years.

### Thick-Shell Line Produced

The data on the birds studied were obtained on eggs laid in the fall and winter of the pullet year of production, so that seasonal differences, were not in any way involved. The first result brought out was that it is possible by selection to establish a line of birds producing thick-shelled eggs, as well as a line producing thin-shelled eggs. This was accomplished in the first year of selection, the thick-shelled line producing eggs with 9.85 per cent shell, while the eggs from the thin-shelled line contained only 9.14 per cent shell. Comparable differences have now been maintained for four generations.

Crosses between the two lines produced pullets laying eggs with an intermediate shell percentage. However, the character of the crosses was found to depend on which way the cross was made. When the mother used in the cross came from the thick line, the daughters' shell percentage tended to be higher than when the mother came from the thin line. This, perhaps, explains the ease with which the two lines were established, since the selection had to be based on the performance of the females.

Another factor discovered was that the greatest difference between the shell percentage of the two lines was in eggs laid in the second position of the clutch rather than in the first. While the thin-shelled line produced fairly adequate shells in the first egg of the clutch, the second egg as a rule showed much weaker shells. In the thick-shelled line, however, the birds apparently were able to maintain an adequate proportion of shell in the second and succeeding eggs of the clutch.

## *Poultrymen and the Chain Store Bill*

We are told that one of the first things that Congress will consider when it convenes is the Patman Bill affecting chain stores. Much has been said for and against this bill, yet the fact remains that it is one of those things that penalizes initiative, good service, and good management. Competition is the life of trade, and the consumer reaps the benefit. Farmers and poultrymen, in addition to being consumers, have a selfish interest in chain stores, for they are buyers of huge quantities of poultry and eggs. Furthermore, chain stores have consistently pushed these products to the industry's advantage. Let's hope that Congress will look, in fairness, on all phases of this problem, before acting.

—American Poultry Journal, January, 1939

## *Selling Shirts with Hard Boiled Eggs*

A NOVEL mail promotion recently launched among shirt makers and buyers by the Sanforizing Division of Cluett, Peabody & Co., Inc., New York City, used 720 hard-boiled eggs. "Be a hard-boiled egg for a minute and a half" was the headline over an article on shirt shrinkage problems, illustrated by a picture of a "tough-looking" man, whose head was a real egg on which a face was hand-painted. Expert candlers handled more than 9,700 eggs before they got 720 which would fit the size and shape of the required figure and would have strong enough shells to withstand boiling and mailing.

A NEW chicken-stealing racket was reported from Coatesville, Pennsylvania. When a housewife there missed one of her hens, a boy appeared later in the day with the bird which he claimed to have caught several blocks away. He received a dime reward. All of her chickens disappeared the following day, and were brought back in the arms of small children, each asking for 10 cents.

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# Long Time Factors in the Poultry Outlook

*Condensed from the 1939 Poultry and Egg Outlook*
*Issued by the Bureau of Agricultural Economics*

THE outlook for 1939 points to an increase in poultry and egg supplies. The expected expansion of the industry in 1939 may lead to some temporary contraction of production in 1940. Unless unfavorable conditions intervene, however, the swing of production over the next 4 or 5 years is likely to be upward from the relatively low levels of the past several seasons.

The high point in numbers of chickens on farms, around 475 millions, was reached in 1928. Since that time numbers have declined to about 387 millions in 1938 due to droughts and disturbing economic conditions. In view of the volume of production of the poultry industry at its peak in 1928, it seems reasonable to expect some re-expansion over the next few years.

### Greater Efficiency Exists

While the increase in population over the past decade would require some increase in average production if per capita consumption is to be maintained, the trend toward increased efficiency of layers has been such that former levels of production can be attained with fewer birds.

More specific factors pointing in the direction of an increased output of poultry and eggs are (1) the probability of more abundant feed in most of the recent drought areas, (2) a long-time tendency toward a higher rate of lay per bird, and (3) a continuation of the trend toward commercial flocks. In the case of poultry meats, the trend is in the direction of more specialized methods of production, evidence of which is to be seen in the increasing production of fall and winter broilers and turkeys.

### Regional Trends in Egg Production

Reductions in numbers of layers during the past 10 years have occurred in all regions of the United States, the decrease having been sharpest in the central parts of the country and least marked in the areas of commercial production in the Northeast. Much of the reduction in numbers of birds, especially in the West Central States, was caused by the droughts in 1934 and 1936. More normal crop conditions in this area will undoubtedly bring about a substantial recovery of poultry production during the next few years.

## Proportion of Eggs Laid in Winter Increased

**Egg receipts at New York City—7-year Averages**
**Per cent Each Month is of Average Annual Totals**

| Period | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910-16 | 4.0 | 5.3 | 10.9 | 15.9 | 16.1 | 12.2 | 8.7 | 7.7 | 6.6 | 5.6 | 3.5 | 3.5 | 100.0 |
| 1917-23 | 4.2 | 6.0 | 12.9 | 15.5 | 14.5 | 11.7 | 8.7 | 7.5 | 6.4 | 5.5 | 3.6 | 3.5 | 100.0 |
| 1924-30 | 5.6 | 7.0 | 12.1 | 15.0 | 14.0 | 11.4 | 8.4 | 6.8 | 6.1 | 5.1 | 3.9 | 4.6 | 100.0 |
| 1931-37 | 7.4 | 7.4 | 11.4 | 12.6 | 13.3 | 10.9 | 8.3 | 6.9 | 6.1 | 5.5 | 4.8 | 5.4 | 100.0 |

Numbers of layers in the highly commercialized areas of the far Western States have shown a decline of 17 per cent as compared with only 2 per cent decline in the similar commercialized section of the North Atlantic States.

One of the reasons for the greater decrease in the far West has been the low level of egg prices in recent years, which has made it difficult for eggs from that section to bear the cost of transportation to Eastern cities. Another factor has been the increase in the proportion of high quality eggs produced in areas other than the far West, since such eggs now compete strongly in the eastern metropolitan markets with Pacific Coast eggs.

The South, since 1928, has maintained practically a constant proportion (30 per cent) of the hens in the United States, but has not increased its rate of lay per bird quite as much as the rest of the country. This section will probably endeavor to increase production in the future both because of a more diversified agriculture and in order to care for its increasing urban population.

### Commercial Flocks Increase

Another trend in the poultry industry is the increasing importance of large-scale commercial egg production. This development has been especially marked in the North Atlantic States during recent years and is largely responsible for the fact that this region now produces more than 12 per cent of the total United States egg production as compared with only about 10 per cent in 1928. Commercial egg producers usually specialize in the production of eggs of good quality during the periods of normal scarcity. Present indications point to an increase in the proportion of eggs from commercial laying flocks.

### Trend in Rate of Lay per Bird

A persistent increase in the number of eggs laid per hen has been shown since data were first made available by the Federal Census in 1880. Part of this gain may be ascribed to more intensive methods of commercial egg production. Sample flock returns indicate that commercial flocks produce about 19 per cent more eggs per layer than average farm flocks. Practically all of this increase in production per layer by large over small flocks comes during the fall and winter months.

### Seasonal Changes in Egg Production

The proportion of the annual supply of eggs sold during winter months has been increasing since pre-war years. While this increase has not been a constant one it has now reached such proportions that it materially affects poultry producers' operations.

An increased supply of winter eggs can be obtained by the use of pullets from earlier hatchings, improvements in laying stock, and improved housing and management. The increase of winter egg receipts reflects, to some extent at least, the growth of commercial poultry farms specializing in egg production.

At least partially as a result of the changing seasonal trend in egg supplies there has also been a change in the trend of seasonal egg prices since pre-war years. Since 1930, farm egg prices have usually reached a peak in November instead of December and the rise to and decline from this peak now occurs about one month earlier than it did during the years prior to 1931.

### Trends on Poultry Meats

Of considerable importance in the production of poultry meats is the trend toward more commercialized production methods. One of the factors making for this tendency is the development of more specialized and efficient egg production methods, which has reduced the supply of poultry meats arising as a by-product of egg production.

The growing practice of sexing baby chicks and destroying surplus males is further reducing the supply of poultry meat from this source. This has encouraged the production of fall and winter broilers as a specialized enterprise, and may lead to similar methods in the production of roasters and heavier meat birds.

Until the advent of commercial production methods, broilers were mainly the by-product of the production of layers. Marketings were limited to the spring and summer months, with little or no attention given to the production of "off-season" broilers for use during fall and winter months.

Specialized broiler production on an extensive scale was begun many years ago in several sections of the country, notably the North Atlantic States and later in the Delaware-Maryland-and-Virginia area. Recently it has been started in other areas, examples of which are northwestern Arkansas and parts of Indiana.

### Consumption of Poultry Products

A recent development in the poultry industry has been the effort of producers and trade groups to increase the demand for eggs and poultry products through various methods of advertising and sales promotion.

**Annual Per Capita Consumption of Chickens and Eggs**

| Year | Chickens | Eggs |
|---|---|---|
| | Pounds per capita | Pounds per capita |
| Average 1926-30 | 21.2 | 42.2 |
| 1931 ........ | 20.2 | 40.8 |
| 1932 ........ | 20.4 | 38.3 |
| 1933 ........ | 21.1 | 37.2 |
| 1934 ........ | 19.4 | 36.0 |
| 1935 ........ | 18.6 | 34.4 |
| 1936 ........ | 20.4 | 34.8 |
| 1937 ........ | 19.0 | 38.6 |

In connection with these or any other efforts at sales promotion for eggs, several factors need to be kept in mind. Consumption in any season is largely determined by the amount produced. Any immediate effort of advertising or sales promotion will thus be reflected in terms of price rather than of increased per-capita consumption, as is sometimes thought.

A factor often lost sight of in efforts to increase the consumption of food products is the effect of family income on food purchases. Eggs and especially poultry meats are often in the nature of a semi-luxury for many people of limited means. Studies which have been made indicate that families whose incomes permit food purchases of $150 or more per capita per year eat more than twice as many eggs as those whose per capita food budget is as little as $100 or less per year. For large sections of the population the way to greatly increased demand is clearly through an increase in the wherewithal to buy.

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"YOU might mate twelve of the very best hens—real Greta Garbos of the feathered world—with twelve choicest cockerels—real Robert Taylors—and yet produce complete duds," said Mr. H. R. Hunter, when he distributed the Gloucestershire (England) Laying Test prizes recently.

—Feathered World, December 2, 1938.

# Diary of a Poultryman

By P. S. White
Egg Farmer, Wayne County, Ohio

*Condensed from Everybodys Poultry Magazine*

**Jan. 1**—The first day of the new year and a beautiful day at that. In fact, it was such a warm day that we were able to finish stretching the pasture fence. We also hung the gate which was made several weeks ago. In the meantime, the gate has had two coats of creosote to protect it from the weather.

I have a feeling that if this kind of weather continues very long, the price of eggs will decline rapidly. They are on the down and down now, dropping 5 cents this past week. The question is "Just how low will they go?"

I wrote Walter Buss a check for 4,500 chicks to be delivered the last week in April. It is what is known as confidence when chicks are paid for 4 months before they are hatched. On the other hand, if I didn't have the money, I would get the chicks just the same. Walter would have that much confidence in me. There is nothing like mutual confidence; it keeps the wheels of industry turning.

**Jan. 5**—The feed scoop in the west house has been in continuous, daily use for 12 years this month. It is inconceivable to me as to the amount of feed it has scooped up. Five hundred tons of feed is a big pile, but I don't think it would be more than a couple of hundred tons out of line. A 40 per cent error plus or minus is really pretty close figuring for some of my wild ideas.

**Jan. 6** — Arlo Mowrey brought his team of big Belgian horses and the lime spreader over and sowed the lime and phosphate. The pasture looks as if it had a special snow on it, everything is so white. If the cows reap as we have sowed, they should give a barrel of milk a day.

These old hens are showing a great deal of activity. Their production is daily increasing. I'll bet that the price of eggs was down on today's auction. The price always goes down when my birds lay heavy.

**Jan. 10**—Last night I worked my head, and it worked. It was one time that it paid a big dividend to work my head in the right channel. The thermometer was dropping, so we just drained all water pipes and filled the waterers with boiling water. This morning the thermometer registered 6 degrees below zero, but everything was setting Jake. A little head work is a great thing when it works.

About 12 o'clock last night I went out to the block house and chunked up the fire. The birds were as snug as a bug in a rug this morning. The weather man predicts warmer weather for tomorrow and it looks that way to me, too.

**Jan. 11**—It warmed up last night, and a heavy snow fell. Today is rather pleasant; turned the water back in the fountains. If the snow lasts for a few days, our stakes in the pasture will be a great help when we spread this week's accumulation of droppings.

I went around to all the fountains this afternoon and scraped the droppings from the running boards with a broad putty knife. They look much better and are more sanitary without a doubt. I do hate to see an accumulation of droppings on the running boards. Probably, I should say the lighting boards.

**Jan. 12**—The problem of cold, wet hands from washing fountains has been solved to a fare-ye-well. A pair of rubber-coated, canvas gloves do the trick. They appear to me to be the ordinary canvas gloves dipped in rubber. Anyway, they are waterproof, reasonably warm and cost only 25 cents a pair. Chapped hands and cracked knuckles usually give me more than 25 cents worth of pain a day. After each usage, the gloves are dried on a burlap feed bag and placed on the shelf in the feed room. Whoever washes the fountains the next time knows exactly where they are.

**Jan. 14**—L. L. Rummell, field editor of the Ohio Farmer, has released via radio and press the names of the eight men selected as Ohio's Master Farmers for 1937. "There has been much running to and fro and knowledge has been spread." Congratulatory messages have been pouring in all afternoon from farmer friends, merchants, professional men, clerks, everybody. I didn't know I did have so many friends; "My cup has run over." A luncheon and the presentation of gold medals will take place at the Ohio State University, Wednesday, Jan. 26. So has Ohio honored me, a stranger in a strange land.

**Jan. 15** — It was an original idea with me, this thing of staking off the droppings when we finish spreading them on the pasture. But today, with about 3 inches of snow on the land, we were able to tell exactly where we had left off spreading the last time. And that place was the starting point. As near as we can estimate, the rate of application is around 20 tons to the acre. This means not far from a pound of droppings to the square foot, a healthy application for any soil. But if there is plenty of rain, there should be grass that has often been read about but very seldom seen.

**Jan. 17** — It is a nightly chore to place up the litter around the fountains. The litter is a wee bit damp, but it seems to me that we are able to hold our own. That is, the litter is not getting any damper.

**Jan. 18**—"I have faith," said Earl Rice, when I met him at the Auction building today, "I have faith in the chicken business now." "You will notice," he continued, "That three of the eight Master Farmers for this year were poultrymen." And right he was.

Well, we cleaned the dropping boards again today. One can't tell what the weather will do at this time of the year. A hard freeze for a few days and I would be out of luck. It doesn't take long for droppings to accumulate. I have established a basic fundamental principle — play safe, don't take a chance with this chicken game. It pays big dividends.

**Jan. 19**—I am saving up for a hair cut until nearer the time to go down to the University at Columbus. Guess that is where I missed it, for a visitor stopped today and caught me wearing five days worth of whiskers and some very dirty overalls. I admit the overalls were dirty, and Kid White says that when I admit it, they are dirty.

Anyhow, the gentleman asked for "Doctor" White, and when he found out who I was, he acted slightly frustrated. I could read his mind like an open book. He has expected to see me wearing patent leather shoes, spats,

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(Everybodys Poultry Magazine, January, 1939)

pin stripe trousers, claw hammer coat, bat wing collar and a monocle. But that kind of an outfit doesn't go on this job.

**Jan. 21**—Yes, it is life and with a bunch of deaths mixed with it. A bird carries her life around with her, but death stalks right beside her. At least, that is what I found when I opened the door of the block house at 2 p.m.

Pandemonium had broken loose. The quarter back was trying to carry the intestine through a solid wall of opposition. I realized at a casual glance what was causing all of the trouble, but I couldn't locate the victim. I searched; I found. She was in one of the tunnel nests. Coffin nests, I call them, and for once, I called them right.

**Jan. 22**—The car has been shampooed, waxed and the nickle parts polished. It is blanketed in the garage and won't be moved until next Wednesday when we leave for Columbus. When I drive up in front of the Chittenden Hotel I don't want the doorman to think that someone has come down out of the sticks.

Kid White has had a shampoo, hair set and a couple of new dresses. I have had a hair cut, shampoo, new gloves and hat. We are all set for a second honeymoon; the first one was 15 years ago and in Columbus too.

**Jan. 24** — I always feel more at peace with myself if all of the out-of-the-ordinary work is done before I take a holiday. Me and myself have some terrible battles at times. Not that cleaning dropping boards is such a rare thing, but still it isn't an every day job. Looking down towards Columbus Wednesday, it seemed a wise policy to do the cleaning today. It was raining, but the job was done by noon.

**Jan. 26**—Chittenden Hotel, Columbus, Ohio. Twenty minutes late to the luncheon for Master Farmers, but Kid White and I got here just the same. Zero weather and a glare of ice for 20 miles south of Mt. Vernon made driving a classic in wiggling and wobbling. Fortunately, we didn't loop the loop.

I have been honored beyond all expectations; I have had a luncheon in my honor; I have been presented with a gold medal! I am one of the seven Master Farmers of Wayne County; I am one of 97 Master Farmers of Ohio; "my cup has run over;" "I am very happy about the whole thing."

**Jan. 27**—Columbus, Ohio. That man Dakan, who is the head of the Poultry Dept. of Ohio State University, has the faculty of looking over the mountain and reading the hand writing in the valley beyond. Says he, "It is only a question of time until you poultrymen will have to get some one like Ben Bernie, Mae West or Charlie McCarthy to sell your products for you. It doesn't do you folks any good when the consuming public makes a breakfast of a cup of coffee and a cigarette."

Yes, it is something to think about, seriously, too. What has become of all of those old fashioned breakfasts of fruit, cereal, eggs, bacon, jam, hot biscuits, toast or fried mush and milk? All classes of farmers had a rake-off on those breakfasts. They have probably "gone with the wind" or feminine curves.

**Jan. 28**—The glamour of the second honeymoon and the royal reception at the State University are only memories, but very pleasant ones. It seems to me, in looking back over the past years, the years that were the basis for the Master Farmer award, that those years were, after all, rather pleasant. They were filled with hardships, trials and tribulations; no one can question the fact; they were for us all. But I tried to keep the Faith.

I took just as good care of stock when eggs were below the cost of production as when there was a profit to be made. I candled every egg regardless of the price or how tired I was. I maintained all the buildings in good repair; I paid my taxes; I tried to be a good citizen. There were many sorrows and heartaches and blue Mondays, but that is forgotten now. Yes, they gave me a gold medal, a gold medal for keeping the Faith.

**Jan. 29** — The boys at the Auction had a bet among themselves that my eggs would not be candled and graded today. They overlooked the fact that I would probably do some packing last night. In fact, I finished packing at 12:30 this morning. I don't know who won the bet, but all seemed relieved when they found out the eggs were all candled and graded. This, of course, meant that they would have no extra work to do. They work until 9 o'clock on Saturday nights, getting ready for Monday's sale.

## *Why Do Hens Eat Their Own Droppings?*

When hens eat their own droppings it is an indication that the birds are not getting a complete ration, according to W. E. Newlon, poultry extension specialist with the University of California.

This vice is most common in flocks which are very closely confined which, of course, prevents them picking up many things which would help them balance up a deficient ration, Newlon points out.

"We believe that birds tend to consume droppings because of their desire for additional bulky material and, therefore, suggest a daily supply of tender green feed in order to supply this bulk," Newlon said in discussing this condition. "When tender greens are not available daily, we suggest wheat bran or alfalfa hay, or both, as a substitute.

"The alfalfa hay can be placed before the birds so as to permit them to eat as much of the leaves and smaller stems as they desire. They will not eat too much alfalfa if grain and mash are supplied in satisfactory amounts. The wheat bran, giving to the birds to discourage the vice mentioned should be placed in an open trough or hopper, and can be kept before birds in addition to their regular mash and grain feeding. They will not eat too much bran. Our experience indicates that birds which get a sufficient amount of bulky material, such as tender greens, alfalfa hay, wheat bran, or a combination of these, in addition to the regular grain and mash feeding, seldom consume droppings."

—Pacific Rural Press.

¶ A NORFOLK farmer was fined one pound with 1 pound and six shillings costs for exposing six turkeys suffering from roup for sale at Norwich market.
—Feathered World. London, England.

# Cement-Sawdust Concrete for Poultry House Floors

By Russell R. Skelton
University of New Hampshire

*Condensed from An Extension Circular*

CEMENT-SAWDUST concrete in appearance, is the same as an ordinary cement-sand mortar, except that it is light and fluffy and weighs about one-third that of ordinary concrete. The compressive strength of the material will vary with the proportion of cement to sawdust, but will average 300 to 400 pounds per square inch.

The material is warm and is an excellent insulating agent. The finished product is water repellent, is easily finished to a smooth surface and is relatively resistant to abrasion. It is fire resistant and will not support combustion; tests proving that it will withstand temperatures up to 250 degrees F. without detrimental effects.

The resilient quality of the material is due to the somewhat porous character of the mixture. Resilience is very desirable for poultry houses, since the floors of such buildings should possess good shock-absorbing properties. It can be sawed with an ordinary carpenter saw and it will hold nails or screws.

### Materials Required

The materials recommended for use in obtaining the best results consist of Portland cement, sawdust and water. The cement may be of any commercial brand readily obtained in all localities; however, it should be new, dry and free from lumps.

The sawdust should be of that quality obtained from the main saw, rather coarse in size and not less than one year old. White pine, spruce or hemlock sawdust is preferable. Hardwood sawdust is not recommended since the grains are likely to be too small and too uniform in size. Sawdust obtained from the resaw, or from factories or mills should never be used because the grains are too small.

The sawdust should be screened through an ordinary mason screen, in order to remove the larger pieces of stringy bark. The mesh of the screen should not be less than one-fourth inch.

The water used for mixing should be clean, and preferably from a supply used for drinking or watering purposes.

### Equipment Necessary

The equipment required consists of a power-driven concrete mixer, a metal wheelbarrow, buckets, bushel baskets, a wooden float, a steel float and a light wooden tamper.

It is absolutely necessary that the material be mixed in a power-driven mixer, in order to achieve the desired results peculiar to cement-sawdust concrete. Any size or type mixer will suffice; however, a one-fourth bag mixer is recommended as adequate for small jobs.

Buckets of known capacity are required to measure the exact amount of water and cement required for the mixture, and bushel baskets or other measures may be used to measure the sawdust.

A wooden float and a steel float are required to impart the proper finish. The wooden float should be used first to obtain the preliminary surface and a steel float should be used to obtain the final finish.

Some form of a light wooden tamper should be made and used to compact the material previous to the finishing operations. It should not be too heavy and may easily be constructed from materials available on the farm.

### Thickness of Floor Slab

For cement-sawdust concrete poultry house floors, a total thickness of 3 inches is recommended. This is obtained by first pouring a base 2 inches thick and then placing a surface 1 inch thick directly on the base before the former has hardened. It is important that the operation be continuous in order to obtain a good bond between the two courses.

### Size of Floor Slabs

Concrete floors are usually constructed in relatively small unit areas with contraction or construction joints placed vertically between the slabs. It is recommended for the cement-sawdust concrete floors that slabs no larger than 12 by 12 feet be constructed in one operation.

The floor area may be divided into conveniently sized smaller slabs by lightly nailing 2 by 3 timbers to the floor, the 3-inch dimensions vertical. This arrangement of timbers furnishes a form to hold the concrete in place, and also a means whereby the proper level of the concrete slab can be obtained. A board may be moved along the top of these header boards to accomplish a spreading action.

As soon as one slab is completed the header timber is removed, leaving a vertical face against which the concrete of the next slab is placed. This vertical face forms a vertical contraction joint; no other joint is necessary since cement-sawdust concrete does not contract or expand in any appreciable amount.

### Proportioning the Mix

In preparing concrete it is necessary that the mix be designed to best suit the requirements of the job. In this case a mix of 1 volume of cement to 3½ volumes of sawdust, loose measure, is recommended as most desirable.

The total volume of material to be mixed at one time will depend upon the capacity of the mixer. A bag of cement is equal to one cubic foot. The most common type of mixer, one with a ¼ bag capacity, will ordinarily produce about 1 to 1½ cubic feet of mixed concrete, using ¼ bag of cement, for the average mixes. It is recommended that after obtaining the mixer, a trial mix be prepared to furnish a basis for determining the volumes to mix per batch for the entire job. In order to obtain good conditions the mixer should be run about one-half full. A trial mix for a ¼ bag mixer is 2 gallons of cement to 7 gallons of sawdust, which is a mix of 1 to 3½. Adjustments can be made after the first trial, but the ratio 1 to 3½ must be maintained. Any convenient set of containers may be used to measure the materials, but they should be of equal or known capacity.

The amount of water for a given amount of cement is the most important item in obtaining the desired strength in any kind of concrete work, and once the correct amount of water is obtained this same amount should

Condensed from Extension Circular No. 217, "Cement-Sawdust Concrete for Poultry House and Dairy Barn Floors." University of New Hampshire, Durham, N. H.

be carefully measured each time for the same amount of cement so long as the conditions remain the same.

Sawdust in piles always contains more or less water. The amount has been observed to vary from 15 per cent to 200 per cent of the weight of the dry sawdust. Dry sawdust will absorb and hold 100 per cent of its dry weight without liberating any of this water to dilute the glue-like properties of the cement. Likewise, if the sawdust be dry it will absorb all the water which has been added to the mix to make the cement paste.

In order to determine the amount of water in the sawdust, several trial weights may be made as follows: Obtain the entire supply necessary for the job and place it in one pile. Using a bushel measure as a convenient container, weigh a container level full, loose measure. Repeat the operation by obtaining samples from three separate parts of the pile, being careful to get relatively average samples. Do not tamp the sawdust in the container.

Take the average weight of the three samples (the three weights should be nearly equal), and from the weight in the accompanying table for one bushel of moist sawdust the total number of gallons of water is given. This figure is prepared to include all the water that is to be added to the mix; no more or no less should be added. The amount of water is stated in gallons required per bag of cement for a mix of 1 to 3½. Where the quantities of cement are decreased per batch the water should be reduced in like proportion.

The sawdust should have been well mixed and kept covered with damp burlap bags during storage. In event the sawdust becomes wet from rains, after the weight of absorbed water has been determined, the process will have to be repeated to determine a new water content.

### Mixing Methods

In mixing cement-sawdust concrete the cement and sawdust are first placed in the mixer and mixed dry for about ½ minute. All the water is then added gradually and the entire contents mixed for not less than 4 minutes. The material should then take on a light fluffy appearance, somewhat resembling the consistency of whipped cream. The material is now ready to be placed on the floor.

The mixer should be kept turning as long as any material remains in the drum. All the concrete should be placed before another batch is mixed.

Should the mix appear too dry or too wet, it is recommended that the weight and water content of the sawdust be redetermined as a check.

### Mix for Abrasive Resistant Floor

When excessive wear is expected because of cleaning operations and where heavy equipment may be moved over the floor, an abrasive resistant surface should be placed. Such a surface may be obtained by introducing sand into the mix for the 1-inch wearing surface only. It is recommended that the sand be screened through a fine screen and be free from clay or humus material.

The mix recommended for such a surface is 1 volume of cement, 1½ volumes of fine sand and 3½ volumes of sawdust. All quantities should be measured loose. No additional water is necessary on account of the added sand. This mix is only intended to be used as a wearing course which is to be placed 1 inch thick upon the 2-inch base course, mixed as previously described without sand.

### Water Required Per Bag of Cement

| Weight of loose sawdust for varying moisture content in pounds per bushel | | | | | | | | | | Water to be added to mix, per bag of cement |
|---|---|---|---|---|---|---|---|---|---|---|
| 10.5 | | | | | | | | | | 10 gals. |
| | 12.0 | | | | | | | | | 9½ " |
| | | 13.75 | | | | | | | | 9 " |
| | | | 15.5 | | | | | | | 8¼ " |
| | | | | 18.0 | | | | | | 7 " |
| | | | | | 22.0 | | | | | 6 " |
| | | | | | | 23.8 | | | | 5¼ " |
| | | | | | | | 25.0 | | | 5 " |
| | | | | | | | | 26.0 | | 4¾ " |
| | | | | | | | | | 27.5 | 4¼ " |
| 0% | 25% | 50% | 75% | 100% | 125% | 150% | 175% | 200% | 250% | Per cent moisture |

Note:—The amount of water shown includes that water held by the sawdust when wet, for a stated mix of 1 to 3½ by volume.

Example:—Average weight of three test samples is 18.0 lbs. In the table pick out 18.0 lbs. In the column at the extreme right you will read 7 gallons of water. This is the total amount of water to be added to the mix.

The function of the sand in the wearing course is to act as a filler between the grains of sawdust. During the finishing operations, the sand works towards the surface and produces finally a more dense, watertight and wear-resistant surface.

### Placing the Concrete

The base course is poured first, completely laying the 2-inch course for one section of the floor. The material is lightly but well tamped in place and leveled off with a strike-off board or wooden float. Care should be exercised to fill all holes or foot marks made during finishing operations. As soon as one section of the base course has been completed, the surface, or wearing course, is immediately applied.

Great care must be used in placing and finishing the surface course, in order to obtain a smooth and water-repellent surface. The material may be spread with a board or a long handled wooden float. It must be finished with a steel float.

### Curing the Floor

All concrete work should be kept constantly damp for at least 7 days to prevent evaporation of the water placed in the concrete. It is suggested that the finished floor be protected from the heat of the sun. As soon as the surface is hard to the touch, about 12 hours after it has been poured, the floor should be covered with about 1 inch of loose sawdust and sprinkled with water. This sawdust should be kept thoroughly damp for 7 days.

Under no circumstances should the floor be walked upon during the curing period. At the end of the 7-day period the loose sawdust should be removed and the floor allowed to dry for 3 days. At the end of the 10-day period, the floor may be put into use and light equipment may be installed. Cement-sawdust concrete does not harden so quickly as ordinary concrete, and no heavy loads should be placed on the floor for 28 days.

# Ventilating and Heating Battery Hen Houses

By J. C. Scott
Agricultural Engineer
Puget Sound Power and Light Co.

*Condensed from Agricultural Engineering*

THE practice of keeping laying hens in individual laying cages, commonly referred to as hen batteries, is rapidly expanding in western Washington. Some reasons for expansion of this practice are as follows:

1. Ease of keeping individual laying records.
2. If the house is of correct dimensions, nearly twice as many birds can be housed as where they run on the floor.
3. Reduced spread of disease.
4. Facilitates exact culling.
5. Timid birds not interfered with by bullies.
6. Replacement hens are not run over or interfered with by the rest of the flock.

In keeping a large number of hens in rooms, the problem of sufficient ventilation is intensified. The problem becomes more serious in the colder weather because opening windows or ventilators produces drafts on the birds close by, and it is impossible for the birds in the individual cages to get out of the drafts. Also exercise of the birds is practically eliminated. Even though it were possible to eliminate severe drafts on birds close to windows, yet to get sufficient air into the room for this larger number of birds develops a serious problem in connection with low temperatures in the house.

In the fall of 1936, S. A. Sween, poultryman near Woodinville, Washington, who has for years made a practice of keeping all layers in individual cages, presented this problem of ventilation and heating in the battery room to the agricultural engineering department of our company. Our problem here was to introduce sufficient air into the room and at the same time eliminate drafts from all parts of the room, and produce an even temperature between the ceiling and the floor.

### Blower Fan Used

To get these results, we planned a setup to use a blower fan operated by an electric motor set over the ceiling of the poultry room. An opening was cut in the middle of the room at the ceiling. The air entering the room was baffled so that there was no severe draft on any of the birds at any time. All doors and windows were closed so an air pressure of about ½ inch was developed inside of the room. With this pressure there was sufficient air escape, through cracks and crevices around the doors, so that there was a lack of odor, no damp walls as in the other buildings using window openings, and a difference in temperature between the floor and ceiling of only 3 F (degrees Fahrenheit). Temperature was maintained at 50 F or higher. The result was healthier and more comfortable birds, and the air temperature at 50 F solved the water-warming problem. There was no slump in egg production

From "A New Demand for Ventilating and Heating Poultry Houses, Agricultural Engineering, St. Joseph, Mich. Nov. 1938.

during the entire winter, as was experienced in the other houses using the old system of window ventilation.

### Description of the Unit

The ventilating and heating unit, which is placed on top of the ceiling, consists of a multi-blade blower directly connected to a 1725-rpm motor. The blower and heater rest directly on the ceiling joists. The discharge from the blower is placed so that it points down through the ceiling in the center of the room. This blower furnished 1100 cubic feet of air per minute and is best suited for a room of 24x40 feet, holding 550 chickens. This unit is equipped with a 2500-watt heater and sells for $45.

### Damper

The air is taken into the blower from the attic where there are openings for outside air to enter. A damper in the air intake of the blower is attached to a regulating lever long enough so it can be operated from the room below. Care must be exercised in using the damper, as it is necessary to keep a slight air pressure in the room in order to maintain an even temperature between the ceiling and floor.

### Baffle and Heating Unit

Under the opening in the ceiling where the air from the blower enters the room is placed a round pan with straight sides about 2 inches deep. In this pan are placed round, sheath-type electric-heating units.

One of the most important features in the successful operation of this ventilation system, in getting an evenness of temperature at the floor and ceiling without drafts, is that the top edge of the pan baffle should not be more than 1⅛ inches from the ceiling. As this pan acts as a baffle to force the air along underneath the ceiling, it is larger in diameter than the opening where the air comes out.

Our first trial of this system of heating and ventilation of the poultry house was made on the Sween farm in 1936-37. The unit was installed in a 24x30-foot unit poultry house. These are not the right dimensions for the economical use of batteries, as there are only 216 hens in this house. It was too narrow to receive the maximum number of cages. Had it been 4 feet wider, 108 more cages could have been accommodated. This unit was operated from December 1, 1936 to January 31, 1937, with an average current consumption of 12 kwh per day. During this period of 62 days the outdoor temperature was below freezing 49 days, and part of the time as low as zero.

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❧ "CRIME DOES NOT PAY." Nevertheless, while Arch Henderson, Pittsville, Mo., was listening to his radio, thieves pilfered 13 birds from his turkey roost, and at the time, the radio was featuring—"Crime Does Not Pay."
—Turkey World, December 1938.

❧ A KENT, England, poultryman, living a distance from the road, has fastened bellows attached to a horn, to a tree along the road in front of his farm, so that if a customer wants to buy eggs, he can merely blow the horn, and the farmer will come out with a dozen eggs.

# Mulching the Poultry House Floor

By L. E. Weaver
Cornell University

*Condensed from American Agriculturist*

WHAT I am about to write may shock some poultrykeepers. It sounds unsanitary, or even dangerous to the health of the hens. Nonetheless I am convinced that there is merit in the idea. Of course, like any other item of poultry flock management it must be used with a deal of good judgment and common sense. I got the idea from a poultryman just last week.

If your fall poultry-house-cleaning is done early there will still be enough warm dry weather that the new litter may become a mixture of semi-pulverized litter and dried poultry droppings by the time winter closes down and ventilation must be restricted. By adding new straw, peat moss, shavings or what-have-you from time to time you will not have any serious trouble with damp litter. That is, provided you don't have too many birds in the pens, and there is a reasonably sensible system of air movement into the house and out again. If, on the other hand, you clean out everything just before cold weather and put your nice clean litter on a bare concrete or board floor it will probably be so wet in two weeks or less tnat you will have to change it; then you will keep on changing it at frequent intervals all winter.

I am not certain as to the correct explanation for all this. I do know, and have known for a long time that if dry sand or other fine material covers the floor like a dust mulch, then any litter material put over the mulch does not become moisture-soaked, as it would if the mulch was not there. Perhaps the mulch absorbs the moisture. I have a notion, however, that temperature has something to do with it. Perhaps the fine mulch holds some heat, and that helps keep it dry.

### Dry Floor Lessens Disease

How much does the litter have to do with the spread of poultry disease? Without doubt it can have a great deal to do with the spread of certain troubles. For instance, coccidiosis, round worms, pullorum. I expect that fowl-pox or bronchitis or cholera would spread through the flock regardless of the condition of the litter. We were told at the Poultry Science meeting this summer that fowl paralysis can be spread through the droppings, though ordinarily very little spreading does occur that way. Neither round worm eggs nor the oocysts of coccidiosis can cause disease when first passed in the droppings. Since they require moist conditions for development it seems reasonable to expect that if the litter is kept bone dry there should be no trouble from these causes.

The best argument, I think, is the fact that many successful poultrymen when the litter stays dry do not change it for months and have no noticeable increase in sickness and mortality.

Certainly I would not think it wise to court danger by feeding grain in the litter. I think grain should be fed in clean troughs, always, no matter how often the litter is changed.

American Agriculturist, Ithaca, N. Y., Oct. 8, 1938.

### Not a Fool-proof Scheme

I hope that I have made it clear that this idea is a good one only under satisfactory conditions. It won't work if you have a leaky roof, or if you let rain or snow drive in through open windows, or if you don't provide some way to catch the drip around the drinking fountains, or if you crowd in more birds than one to every 3 or 4 feet of floor space, or if you fail to provide for air escapes near the top of the room and intakes lower down.

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A LIVERPOOL firm, according to the Feathered World of London, has developed a device to be used in measuring yolk color as an indication whether the eggs being produced are desirable for hatching purposes.

"The color of the yolk shows the vitality of the hen that laid it and the vitality of the chick which will emerge from it. Healthy birds, they say, store carotene (and the vitamin A which is derived from it), and yolk color is a rough measure of the carotene present.

"The Bibby Egg Yolk Comparator consists of a white celluloid-type tray and five rings of various shades of yellow. The ring of richest yellow is numbered 7 and the palest ring is numbered 3.

"To test an egg yolk, separate it from the white (including scraping off the chalazae with a penknife), stir it up gently and pour some of the yolk into the centre recess of the comparator. Then match the yolk with one of the color rings.

"Birds with egg yolks under No. 6 are not fit to breed from, in the opinion of Messrs. Bibby. Nor do they know of any system which depends on feeding carotenoid—containing substances such as maize, alfalfa or dried grass, which will produce a yolk of higher value than No. 6. They consider that breeding stock must be forced to consume great quantities of good pasture to make certain of a No. 6 or 7 Ring."

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ROBIN Red-breast's feather colors were given to White Leghorn chickens in a new genetic experiment reported December 29, 1938, to the American Association for the Advancement of Science.

Dr. Mary E. Rawles, University of Rochester, took from robin eggs a bit of embryonic bird that becomes robin's skin. She put it into a White Leghorn egg, placing it on a "bud" which develops into the hen's wings. The result when the chicken hatched was feathers with White Leghorn shapes but robin tints. There was nothing suggestive of robins except these colors. After the first molt, the robin colors disappeared, not to return.

The study is part of a search for methods by which nature controls colors of feathers.

—Newspaper Article.

# QUESTIONS AND ANSWERS

## Cause of Breast Blisters

**Question** — I have been raising broilers in battery brooders, and a large percentage of them have an irritation of the breast bone, and several have developed pus at the point of these irritations. What can I do to prevent this?—R. S. S., Ind.

**Answer**—The condition you describe is most likely termed breast blisters. It is caused by improper adjustment of the batteries. Birds that are forced to sit continually while sleeping and also during the day, or when trying to feed at a poorly adjusted battery front, are likely to suffer from callouses on the breast bone. Regardless of the age of the bird, the correctly adjusted battery allows the bird to stand upright and does not cramp its movement at any time.

—Poultry Tribune.

## Cause of Slips

**Question** — While caponizing, it sometimes happened that this gland broke loose before I cut the cords; does this usually cause a slip even though the whole gland seems to be removed?—V. W., Mo.

**Answer**—In caponizing it is necessary to get the entire gland out in order that the bird will not develop into a slip. It makes no difference if it broke loose before you cut the cord as long as you got the entire gland and no part of it was left. If even a small portion of it is left inside of the body it is likely to grow again, at least partially, and you will have a bird that is neither a capon nor a cockerel, but what is known as a slip.

—American Poultry Journal.

## Enlarged Gall Bladders

**Question**—In cutting open some of my pullets which had been sick I found the gall bladder greatly enlarged. What causes this and how can it be cured?

**Answer**—Enlargement of the gall bladder is not a specific disease in itself but is caused by some other disease affecting some of the body organs and tissues which results in an increase in the amount of bile stored in the gall bladder.

Diseases such as small intestinal coccidiosis may cause an inflammation of the intestine in the region where the ducts from the gall bladder and liver enter the intestine. This inflammation causes swelling, resulting in closure of the duct openings. The result from this is an increase in the amount of bile stored in the gall bladder. The disease affecting the chickens should be determined, and if it can be successfully treated, the enlargement of the gall bladder will be remedied.

—D. C. Hamilton, Washcoegg.

## Care of Breeding Males

**Question** — How can I keep my cockerels in good flesh and condition during the breeding season?

**Answer** — Male birds are generally very solicitious of the welfare of their mates and often neglect to eat sufficient feed to keep them in good condition. For this reason, we must give special attention to the care of the males and see that they do get plenty of feed, particularly grain. A common method of doing this is to install cockerel hoppers in the pens about 22 inches off the floor, which is too high for the females to reach. It has been observed at the Western Washington Experiment Station that excellent fertility can be attained and the cockerels kept in good condition by removing them from the pens for one day each week and putting them in a separate coop where they are allowed free access to all the grain they want. Probably better results in large breeding flocks can be secured where seven males to 100 birds are usually used, if one male per 100 hens were removed each day of the week and allowed to rest and eat.

—Washcoegg.

## Figuring Hen Days

**Question**—What is meant by hen days and how is it figured?

**Answer** — Hen days is the average number of birds in a flock for any given period. Hen days per month is figured by taking the number of hens in the flock the first of the month times the number of days in the month and subtracting the days lost by birds which die or are culled out. This equals total hen days. The average hen days is obtained by dividing days in month into total hen days which gives the average number of hens in the flock during the month.

This is the most accurate system to use in figuring per cent of flock production, feed consumption and other information pertaining to flock averages. In order to obtain this information an accurate record must be kept of death losses and birds culled.

—Noel L. Bennion, The Eggsaminer.

## Fine or Coarse Mash

**Question** — "Is fine ground mash better than course? If not, why?"

**Answer**—There would be no difference in the feed value of the fine ground mash as compared with the coarse mash if the formula used for mixing each mash and different ingredients that go into the mash were exactly the same. The only difference then in the two mashes of this kind would be in the difference in palatibility or in the way the birds would eat the mash and the amount they would eat in the given time. It is generally recognized that a rather coarse granular mash is more palatable and easier for the birds to eat than one that is finely ground or pulverized.

The poultry department of the Utah Experiment Station has conducted some experimental work on this problem, but the data available at present is not sufficient to warrant any definite statement on this problem as a result of this work.

—Byron Alder, Western Poultry Journal.

## Molting Problems

**Question**—My hens have been molting and I am wondering if there is anything I can feed them to aid feather growth?—W. S. F., Mo.

**Answer** — Many people have the mistaken idea that when hens are molting and not laying, it is not necessary to continue giving them good laying mash. Most experimental work indicates that the requirements of hens during the molt are about the same as during heavy production, so far as the different nutrients are concerned. Hens going through a molt also go through a number of body changes in addition to growing new feathers, so it is very necessary that the birds be given a complete ration during this period.

Since feathers are almost pure protein, it is important to include the necessary proteins, the same as in the laying mash. The condition of the birds at the time the molt starts, methods of housing, feeding, management, and the time of the year are factors influencing the duration of the non-laying period during the molt. Hens molting late in the year, say in October and November, usually molt in considerably less time than those molting during the late summer and early fall. So, it stands to reason that late molters are much more valuable birds than early molters.

—Poultry Tribune.

## *Keep Them Busy*

Successful poultrymen have found that active birds are healthy birds—that continuous activity tends to increase food consumption, and that increased food consumption makes for better body weight—and more eggs. So, keep the laying stock busy. Each time you walk through the pens, draw your hand or a paddle through the top of the mash hopper. If feeding scratch grain, throw a small handful in the litter each time you go through the pens. When using the all-mash system, some of the pellets can be thrown in the litter.

One smart poultryman throws a handful of oats or wheat around the water fountains each day. It makes the pullets work and saves him work, for the birds do their own stirring up of the litter around the fountains.

—Poultry Item.

## *Refrigeration in Our Industry*

“THE poultry industry is vitally interested in any and all developments in our knowledge of refrigeration. In this industry, we have perishable products and by-products. Refrigeration probably has had its most widespread acceptance among those who handle poultry for meat purposes. With eggs there is a chance for improvement as only in the matter of egg by-products has there been a full acceptance of the necessity of proper refrigeration. Entirely too many shell eggs are not properly refrigerated. They are often not even properly cooled before starting on the road to the consuming market.

There is entirely too much prejudice against refrigerated foods in the minds of many people. They fail to realize that when we speak of refrigeration we mean all phases from the simple cooling of the product through the various stages to hard freezing for protection. Fundamentally refrigeration simply means protection of foods by the application of cold. More and more as our civilization grows older is food protection necessary and of vital importance to our people.

—The U. S. Egg and Poultry Magazine, December, 1938.

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# VIEWS OF THE EDITORS

## Large Flocks Pay Best

Connecticut has some interesting figures on profits in poultry. 105 farms kept records in cooperation with the College last year. 1936-37 was not a good profit year, due to the drought, and the average labor income was only $610. Even so, the 15 largest and most profitable farms had an average labor income of $2,498.

In 1935-36, a better year, 78 record farms had a labor income of $1,422 and in the good year, 1934-35, 49 record farms averaged $1,692.

There is a direct relation between size of farm and income. Where the cash sales averaged from $2,000 to $6,000, the labor income was $454. Where the sales were over $14,000, the labor income was $1,565 — three and a half times as great.

Size of flock cuts down the investment per bird housed and the labor cost per bird housed. Flocks under 500 cost $17.51 for investment per bird housed. For flocks over 2,000, cost was $7.10. In the same groupings, the small flocks cost $2.79 per bird for labor, while the large flocks cost only 85¢ per bird.

It is the last 5% or 10% that makes the difference between small profit and large gain. Flocks that averaged 160 to 170 eggs showed a net gain of $472, while those that showed 200 and over had an average labor income of $2,056. For 40 extra eggs, the income was increased almost five times. Only the best producers get these results. Those who obtained 30 eggs and over between October 1 and November 30, had a labor income of over $1,300, while those getting between 25 and 30 in this period had a labor income of only $772. Income jumped 100% for those extra five eggs.

Labor income follows cycles just as do number of hens. 1937 was a low point. 1938-39 may be the crest of the present wave.

—Poultry Item, December, 1938.

## Strong Demand Makes Good Egg Prices

It is true that the relation between production and consumption determines prices. But if consumption is increased by a lowering of egg prices to a point where the producer just breaks even or loses money, this increased consumption is of no benefit to him.

Statistical studies indicate that the more a family spends on food, the more eggs are bought. Therefore, increasing the purchasing power of all those groups that would spend more on food if they had it, is one very positive method of increasing the use of eggs and strengthening demand.

Another way is for eggs to more successfully compete with other food products in the daily diets of families in those income groups that can and will pay prices for eggs high enough to permit profitable returns to the producer. This requires the sale of eggs by grades that are uniformly dependable, and produce such consumer satisfaction as to promote larger weekly purchases.

Standardization of eggs by grades that really mean something to the city housewife is as essential in promoting increased sales of high quality eggs at good prices as it is with any other product. The success attending the cooperative marketing of farm products has been due in large part to standardized grading and packing on a quality basis.

—Nulaid News.

## Dressing Plants

Is the next big development in poultry the cooperative killing, dressing and freezing of poultry meat at the point of production?

Will poultrymen be forced to market more of their birds dressed and ready for the table in the future?

Up to this time, we have shipped them off to market and taken a chance on letting George do it. George did the best he could, in most cases, in spite of racketeers, exorbitant labor rates, high rents and much duplication in the big cities.

There is a classic example of how it required almost as much to haul a chicken from the New York terminals to Riverside Drive, as it took to haul that chicken from Indiana. By the time the consumer gets his chicken in New York, it is often worth three times as much as the producer got for it.

Quick freezing is the modern way. It requires full-dressing, freezing at very low temperatures, which preserves the quality without forming crystals which destroy the cells, and adapts itself to modern packaging.

The streamlined route to the consumer is sound economics and while we will always need the distributing agencies in the big cities, much can be done to lower the cost to the consumer in upstate towns and cities by selling direct instead of thru the big city.

Some of the largest handlers of poultry have already adopted this practice. Producers are a little behind, but there is some reason to believe that they are going to do some catching up.

—Poultry Item, December, 1938.

## Britain Turns Down Request for Congress Funds

The United States has sponsored a World's Fair to be held at New York City in 1939, and Great Britain has accepted an invitation to be represented at this display. The Government has shouldered the responsibility of organizing the display on behalf of this country and has promised to contribute no less a sum than 350,000 pounds. Yet a request for the comparatively small sum of 1,000 pounds for the poultry industry has been turned down. We cannot recall a more glaring example of discrimination against agriculture.

There can be few persons who would wish to be responsible for the discontinuance of these triennial gatherings. Yet the withholding of British support at this late hour may mean the end of congresses.

It is contended in some quarters, perhaps with justification, that the Congress should be held every five years instead of three. And having regard to the difficulty this country experiences in raising the necessary funds we are inclined to favor a longer interval between meetings.

—Poultry World, London, Dec. 16, 1938.

## Eat Eggs Each Day and Keep Anemia Away

One of the most common nutritional deficiency diseases is anemia, according to Florida Agricultural Experiment Station bulletin 328, just published. Anemia is a disease in which the oxygen-carrying capacity of the blood is reduced, and it is not limited to any group or class of society, or to any particular part of the country. Because of the high incidence of anemia and the insidious nature of the effects, the authors of this bulletin believe there should be a more general understanding of its causes and prevention.

Food is the most important means of preventing anemia. But to be effective, foods high in iron must form a part of the daily diet.

A daily diet containing 15 milligrams of iron should prove adequate for the average man under normal conditions. Pregnant and lactating mothers, and growing children, however, require much more.

Eggs are one of the best sources of iron. They are well liked by young and old, and are one of Nature's most perfect foods. Eggs are readily available at all times, and for our health's sake we should eat more of them.

An apple a day is good, they say, but if you eat eggs each day, they will keep anemia away. Young mothers and children, especially, need plenty of eggs in their daily diet.

—Nulaid News.

## Don't Experiment

"I think I'll experiment with the flock this year and see which is the best way of doing," is a very common statement that we have heard many a time. A flock owner may make this statement in connection with a system of feeding or housing or some form of management. If he really carries on some experiment work the way it should be done, he must have check pens to let him see how his old methods or some standard method or practice compares with the one he is testing, else he will not know whether his results were due to the method or system he was experimenting with or whether they were due to some other factor which he had entirely overlooked.

To be sure, every one may experiment if he wishes, but the average poultryman or flockowner is not trained along these lines and is apt to overlook many things that the trained worker already knows about before he starts. Furthermore, experiment work is costly, a fact which he who starts any experiments will find out.

But after all, why should the average poultryman or flockowner want to carry on experiments when there are experiment stations already established with trained workers who are paid to do just this sort of thing? As a matter of fact, if one were to investigate, he might find out, much to his surprise, that this particular idea of his had already been tried out. If there is really experiment work that must be done, the best plan is to take your problem to the places that are equipped to find out all about it.

—American Poultry Journal, December, 1938.

¶ ELSIE BAUER, Missouri farm girl, designed and made an evening wrap, a hat, a muff, and a purse of White Leghorn feathers. Feathers from more than 50 birds went into the wrap, while the muff alone contained more than 2,225 feathers. The feathers were sewed on cloth like applying shingles to a roof.

# Selecting Turkey Breeders According to Market Type

By M. E. Lovelace

*Condensed from Turkey World*

THE selection of the best birds for breeders is one of utmost importance, as it means bettering your flock, stagnating, or possible slipping. Sight selection, taking birds flock run, in my estimation, is worthless. Body defects and structural defects can be overlooked much too easily.

We begin selection when the birds are from 24 to 26 weeks old. Chutes are built and every bird run through one by one. Each hen is caught and handled. Only superior birds are selected, and they must conform to the standard that we have set up for them. It is best to select toms from the flock where one can see them under natural conditions.

### Careful Attention to Breasts

Every bird must have a long, straight, full breast. Breasts that taper sharply from front to back, or rainbow, are eliminated if too severe in nature. The breast must be as near parallel to the back as possible. It has been proved that breasts that curve or rainbow in towards the back will, in time, with that objective in mind, run out and will not be long, but nearly half round. They will be full, but very short. We give particular attention to the breast to see that it is not crooked or "off" slightly on the front end. We feel that crooked breasts can be hereditary, as well as being caused by a feeding deficiency. Cupped breasts, hollow on the front end, are undesirable in market birds and are eliminated.

We next turn our attention to the back. It must be wide, flat, and long. Curved or humped backs are eliminated, as they are detrimental to mating and are hereditary. A hen carrying a long, full breast naturally will have a long, wide back, but one with a long, slender back will never develop a wide full breast.

### Short, Heavy Shanks Desired

The shanks of hens must be short and heavy, with a good straight set of toes. Short, heavy shanks will naturally tend to follow your full, heavy breasts. Crooked toes, in my knowledge, have not been proved hereditary, but rather a product of artificial incubation. However, crooked toes tend to detract from the flock and greatly impair the appearance. Toms must have straight toes to aid mating. The toms we use have a medium length shank to enable better mating qualities. Better fertility naturally follows.

The head must be full, set on a short, heavy neck. Head color must be bright, as bright color denotes health and vigor, while pale heads or discolored ones are the first sign of sickness or diseased birds. The beak must be medium in length with not too much curve. The eyes, in my estimation, should be as round as possible, rather than slanting. These last two requirements are a matter of preference. Long narrow heads, set on a long, thin neck, tend to detract from the appearance of the bird, as well as being detrimental to the body conformation.

Turkey World, Mount Morris, Ill., December 1938

### Plumage Also Is Considered

Last, but not least, plumage must be considered in selecting heavy market breeders. Good plumage is highly desirable as well as denoting health and being most beautifying to the turkey. When all the other characteristics have been satisfactorily passed, those birds having the best plumage and markings are kept.

As soon as our breeders are selected, we move them into separate pens where they will be isolated from the remaining flock. We can then observe the flock, as a whole, and have the opportunity to study the birds that we have selected for our next generation. We watch them closely for at least two months. Any defect or deviation from type that is observed on any hen or tom eliminates it as a breeder, and it is immediately taken back to the fattening pens. Only those birds of the preferred type are retained, and all must be free from defects.

After observing these breeders for at least two months, they are then blanketed (hens) and made ready for mating. At blanketing time, the hens are placed in their respective weight pen. We use five separate pens for our matings. As we never select breeder hens weighing less than 15 pounds, this is our low weight pen. We use 2-pound differentiation between pens. Thus, we are able to see just how fast our flock increases in weight and size. This method is a gradual enlargement, which we feel is the only way to increase safely the flock size. This method greatly hinders the chance of throwbacks.

Toms, likewise, are placed in respective pens according to their weight. We retain no toms less than 28 pounds. Toms weighing from 28 to 32 pounds, are placed in pen 5; toms weighing from 32 to 36 pounds, in pen 4; toms weighing from 36 to 38 pounds, in pen 3; toms weighing from 38 to 40 pounds, in pen 2; and toms over 40 pounds are placed in pen 1.

By this method, we are able to save the eggs from our largest and finest birds separately, and the following year the poults from these birds are marked and saved for breeders, providing they can be selected for breeders.

One should always look for new stock that has the characteristics for which he is breeding. New stock puts more life, vitality, and vigor into the flock, and it will do better and develop faster. In-breeding will, if carried too far, break down the vitality and livability of the flock, as well as destroy the type.

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IN one of the metropolitan dailies, Robert Ripley's "Believe It or Not" featured "The Bridge of Eggs," better known as the Charles Bridge, in Praha, Czechoslovakia. It is said that 202 carloads of eggs were mixed into the mortar to give it added resistance. A carload of eggs was contributed by each of the 202 towns and cities of ancient Bohemia.
—The American Produce Review. November 2, 1938.

# POULTRY STATISTICS

## Hens on Farms—Rate of Lay

**Number of Hens Per Flock, and of Eggs Laid Per Hen and Per Flock, First Day of Month**

| Geographic Division | Layers per flock | | | Eggs per 100 layers | | | Eggs per flock | | |
|---|---|---|---|---|---|---|---|---|---|
| | Jan. 1 | Nov.1 | Dec. 1 | Nov.1 | Dec. 1 | Aggregate Jan.-Dec. | Nov.1 | Dec. 1 | Aggregate Jan.-Dec. |
| North Atl. | | | | | | | | | |
| 1927-36 (Av.) | 95.8 | 86.9 | 92.5 | 18.6 | 19.2 | 457 | 16.0 | 17.7 | 384 |
| 1937 | 104.1 | 87.3 | 94.5 | 23.8 | 27.6 | 510 | 20.6 | 26.1 | 453 |
| 1938 | 96.7 | 88.7 | 96.3 | 26.8 | 27.5 | 516 | 23.8 | 26.6 | 443 |
| North Cent. | | | | | | | | | |
| 1927-36 (Av.) | 116.4 | 97.9 | 108.5 | 15.6 | 12.2 | 393 | 15.4 | 13.5 | 398 |
| 1937 | 111.4 | 89.1 | 98.0 | 19.0 | 16.0 | 427 | 17.2 | 16.4 | 402 |
| 1938 | 102.4 | 93.4 | 102.4 | 20.4 | 17.8 | 452 | 19.4 | 18.9 | 408 |
| South Atl. | | | | | | | | | |
| 1927-36 (Av.) | 60.5 | 53.9 | 57.4 | 19.4 | 17.8 | 406 | 10.6 | 10.2 | 214 |
| 1937 | 61.4 | 50.7 | 52.5 | 22.9 | 21.4 | 437 | 11.7 | 11.3 | 225 |
| 1938 | 55.8 | 53.3 | 56.0 | 23.9 | 23.3 | 454 | 12.7 | 13.1 | 226 |
| South Cent. | | | | | | | | | |
| 1927-36 (Av.) | 67.6 | 59.5 | 62.8 | 19.6 | 15.6 | 388 | 11.7 | 9.9 | 226 |
| 1937 | 64.7 | 54.1 | 56.6 | 22.0 | 17.8 | 410 | 12.1 | 10.3 | 223 |
| 1938 | 59.3 | 57.5 | 60.6 | 22.8 | 19.2 | 435 | 13.2 | 11.9 | 232 |
| Western | | | | | | | | | |
| 1927-36 (Av.) | 74.1 | 67.0 | 71.4 | 21.8 | 18.4 | 466 | 14.3 | 12.7 | 306 |
| 1937 | 72.2 | 66.8 | 70.3 | 25.9 | 22.0 | 494 | 16.5 | 15.2 | 319 |
| 1938 | 71.1 | 67.3 | 71.1 | 25.5 | 21.1 | 492 | 16.9 | 14.4 | 316 |
| United States | | | | | | | | | |
| 1927-36 (Av.) | 86.5 | 74.9 | 81.1 | 17.6 | 14.7 | 407 | 13.4 | 12.0 | 303 |
| 1937 | 84.2 | 69.3 | 74.4 | 21.1 | 18.6 | 439 | 14.7 | 14.1 | 310 |
| 1938 | 77.6 | 72.5 | 78.0 | 22.3 | 19.9 | 459 | 16.3 | 15.9 | 315 |

With a larger than usual number of early pullet layers entering farm flocks and a very favorable feed-egg ratio, which is conducive to high egg production, a new high record of egg production on December 1 was made in 1938. Although numbers of layers on farms December 1 were about 12 per cent below the record high in 1927, an exceptionally high rate of lay more than offset the reduced number of layers.

The average number of hens and pullets of laying age in farm flocks belonging to crop reporters on December 1, 1938, was 78.0 compared with the record low of 74.4 on the same date in 1937 and a 10-year (1927-36) average of 81.1. Compared with a year ago increases were shown in all geographic areas. In the West North Central, South Atlantic, and South Central States the increase was about 7 per cent; in the North Atlantic and East North Central States about 2 per cent and in the Far Western States about 1 per cent.

For the United States, the seasonal increase this year in the number of layers during the three months September-November was about 30 per cent compared with the 10-year (1927-36) average of about 26 per cent. Seasonal

increases were above the 10-year averages in all geographic areas except the North Atlantic where it was about 1 per cent below average.

The average number of eggs laid on December 1 per 100 layers in farm flocks was 19.9 compared with 18.6 a year ago and the 10-year (1927-36) average of 14.7. This is a new high record for December 1, and exceeds the previous high of last year by 7 per cent and the 10-year average by about 35 per cent.

On December 1 new high records in eggs laid per 100 layers were indicated in all geographic areas except the North Atlantic and the Far Western States. In the West North Central area about 12 per cent more eggs per 100 layers were shown than in 1937, in the East North Central about 10 per cent, in the South Atlantic about 9 per cent, and in the South Central about 8 per cent more. In the North Atlantic area only a fraction of 1 per cent fewer eggs per layer was shown than in 1937, and in the Far Western area about 4 per cent fewer.

A new high level of egg production for December 1 is indicated by the reported average production per farm flock. Although the number of layers per farm flock was below the 10-year average, the increased rate of lay was sufficient to bring total egg production about 13 per cent above the previous high level of December 1937 and about 32 per cent above the 10-year (1927-36) average.

The average number of pullets not yet of laying age on hand on December 1 was reported at 21.7 compared with 19.8 in 1937, an increase of about 10 per cent. On November 1 the number was about 8 per cent larger than a year earlier and on October 1 the number was the largest for that date in the record beginning with 1930 and about 11 per cent greater than on October 1, 1937.

—Comment from Poultry and Egg Production Report.

## Egg Prices

**1938 Egg Prices at New York City**

| Kind | Dec. 9 | Dec. 16 | Dec. 23 | Dec. 30 | Dec. 30, 1937 |
|---|---|---|---|---|---|
| | (cents per doz.) | | | | |
| Mixed Color Firsts | 28½ | 28 | 27½ | 26 | 26 |
| Nearby and Midwestern White Premium Marks | 37 -38 | 38 -39 | 35 -36 | 35 -36 | 29 -30 |
| Nearby and Midwestern White Specials | 35¾-36 | 37 | 33½-34 | 32½-34 | 28 |
| Pacific Coast Specials | 38 -39½ | 39½-39¾ | 36 -36½ | 36½-37 | 29½-30 |
| Nearby and Western Brown Exchange Specials | 34 | 35½ | 33 | 30 | 29 |

December egg markets have been irregular. During the opening days of the month, trading in wholesale markets appeared fairly steady. But even at that time the under-tone of the market lacked strength, chiefly because of the weather and the anticipated seasonal increases in current supplies from producing areas.

**Farm Prices of Eggs per Dozen**

(Figures given in cents)

| Year | Jan. 15 | Apr. 15 | May 15 | July 15 | Aug. 15 | Sept.15 | Oct. 15 | Nov. 15 | Dec. 15 |
|---|---|---|---|---|---|---|---|---|---|
| Average 1925-34 | 31.0 | 18.7 | 18.7 | 20.0 | 22.0 | 25.7 | 30.0 | 35.4 | 35.7 |
| 1936 | 22.8 | 16.8 | 18.1 | 20.0 | 22.4 | 24.5 | 27.6 | 32.5 | 30.5 |
| 1937 | 23.1 | 20.1 | 17.9 | 19.4 | 20.4 | 22.9 | 25.2 | 28.0 | 26.0 |
| 1938 | 21.6 | 15.9 | 17.6 | 19.9 | 21.0 | 24.9 | 27.1 | 29.0 | |

The more or less prevalent hesitancy to trade on a basis of advancing prices was not unexpected, for December is a month when a pickup in production frequently occurs, followed by some easing off of prices. Prices did recede slightly during the first 2 weeks of the month, then there came a short period of substantial advances which temporarily took current values back almost to the December 1 level. After December 15, however, the trend was definitely downward, and the month as a whole will show a net decline in Eastern markets of 4 to 6 cents per dozen, depending upon grade. The largest reductions occurred on the better qualities. Pacific Coast markets shared only partially in this decline.

—Comment from Monthly Egg and Poultry Markets Review.

## Poultry Meat Prices

**Farm Prices of Chickens per Pound**

(Figures given in cents)

| Year | May 15 | Sept. 15 | Oct. 15 | Nov. 15 | Dec. 15 |
|---|---|---|---|---|---|
| Average 1925-34 | 18.3 | 17.3 | 16.8 | 16.2 | 15.8 |
| 1937 | 14.8 | 17.4 | 17.6 | 16.9 | 16.4 |
| 1938 | 16.1 | 14.3 | 13.6 | 13.6 | |

## Farm Turkey Prices

**Farm Prices of Turkeys per Pound**

(Figures given in cents)

| Year | Oct. 15 | Nov. 15 | Dec. 15 | Jan. 15 |
|---|---|---|---|---|
| Average 1925-34 | 20.8 | 22.5 | 22.8 | 23.3 |
| 1937-38 | 16.7 | 17.9 | 18.0 | 17.5 |
| 1938-39 | 16.5 | 17.1 | | |

December poultry markets were featured by trading in turkeys for the Holiday demand. On the whole, the turkey market was firm, with supplies quite closely cleared toward the close at prices a few cents higher than last year, and also higher than prices for the Thanksgiving trade. Retail business was reported as active, although margins were necessarily kept narrow in many cases by competitive selling.

# Receipts of Eggs and Poultry

**Receipts of Eggs (cases) at 4 Markets***

| Geographic sections | November 1938 | November 1937 | November % change | Jan. to Nov., Inc. 1938 | Jan. to Nov., Inc. 1937 | Jan. to Nov., Inc. % change |
|---|---|---|---|---|---|---|
| New England | 25,967 | 22,411 | + 15.87 | 269,824 | 320,870 | –15.90 |
| Middle Atlantic | 107,271 | 104,271 | + 2.88 | 1,523,332 | 2,181,209 | –30.16 |
| South Atlantic | 10,719 | 12,047 | – 11.02 | 241,578 | 448,285 | –46.11 |
| East North Central | 130,151 | 158,293 | – 17.78 | 2,501,744 | 3,336,851 | –25.03 |
| West North Central | 160,981 | 144,362 | + 11.51 | 6,308,432 | 5,188,843 | +21.58 |
| South Central | 1,923 | 623 | +208.67 | 98,993 | 79,793 | +24.06 |
| Mountain | 22,131 | 25,324 | – 12.60 | 416,325 | 459,895 | – 9.47 |
| Pacific | 53,680 | 130,016 | – 58.71 | 653,883 | 882,884 | +25.94 |
| Miscellaneous | 246 | 190 | + 29.47 | 4,848 | 7,102 | –31.74 |
| TOTAL | 513,069 | 597,537 | – 14.14 | 12,018,959 | 12,905,732 | – 6.87 |

**Receipts of Dressed Poultry (pounds) at 4 Markets***

| | | | | | | |
|---|---|---|---|---|---|---|
| New England | 1,063,877 | 595,705 | + 78.59 | 11,124,291 | 5,714,198 | +94.68 |
| Middle Atlantic | 1,714,695 | 815,787 | +110.19 | 34,093,028 | 28,384,802 | +20.11 |
| South Atlantic | 922,152 | 768,218 | + 20.04 | 6,906,376 | 3,577,353 | +93.06 |
| East North Central | 6,436,444 | 5,204,186 | + 23.68 | 29,659,001 | 38,951,756 | –23.86 |
| West North Central | 46,869,590 | 39,777,393 | + 17.83 | 150,984,712 | 146,887,384 | + 2.79 |
| South Central | 10,327,559 | 12,854,513 | – 19.66 | 27,363,559 | 33,797,441 | –19.04 |
| Mountain | 2,167,025 | 3,448,674 | – 37.16 | 4,884,373 | 6,531,503 | –25.22 |
| Pacific | 1,994,207 | 2,223,945 | – 10.33 | 9,786,354 | 10,966,378 | –10.76 |
| Miscellaneous | 0 | 0 | – | 0 | 0 | – |
| TOTAL | 71,495,549 | 65,688,421 | + 8.84 | 274,801,694 | 274,810,815 | – 0.004 |

* New York, Chicago, Philadelphia, and Boston.

Receipts of egg at terminal markets are now showing some heavy increases over preceding weeks. At the four Eastern markets, arrivals for the week ending December 24 were approximately 20 per cent greater than the preceding week. The recent heavier movement of eggs has resulted in total December receipts somewhat in excess of those of December 1937.

**Receipts of Eggs at Eastern Egg Auctions**

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| November 26 | 24 | 21,869 | – 1.62 | + 7.51 |
| December 3 | 25 | 23,591 | +12.16 | + 6.30 |
| December 10 | 27 | 25,079 | – 6.53 | – 0.49 |
| December 17 | 22 | 21,511 | + 1.51 | + 7.71 |
| December 24 | 21 | 20,948 | + 8.33 | +24.33 |

**Receipts of Eggs at Pacific Coast Primary Markets**

| Week Ending | Cases of Eggs 1938 | Cases of Eggs 1937 | % Change From Last Year |
|---|---|---|---|
| November 24 | 49,296 | 61,301 | –19.58 |
| December 3 | 50,293 | 66,074 | –23.88 |
| December 10 | 53,669 | 65,102 | –17.56 |
| December 17 | 54,381 | 65,262 | –16.67 |
| December 24 | 50,595 | 61,115 | –17.21 |

### Receipts of Eggs and Poultry at Central Western Primary Markets

| Week Ending | Cases of Eggs 1938 | Cases of Eggs 1937 | % Chg. | Pounds of Poultry (000 omitted) 1938 | 1937 | % Chg. | Pounds of Young Stock (000 omitted) 1938 | 1937. | % Chg. | Pounds of Fowl (000 omitted) 1938 | 1937. | % Chg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 26 | 13,433 | 10,864 | + 23.65 | 6,740 | 5,908 | +14.07 | 4,112 | 3,146 | + 30.68 | 2,529 | 2,677 | – 5.52 |
| Dec. 3 | 16,768 | 11,149 | + 50.40 | 5,841 | 4,231 | +38.05 | 3,288 | 1,793 | + 83.31 | 2,464 | 2,362 | + 4.31 |
| Dec. 10 | 17,469 | 11,808 | + 47.94 | 6,157 | 4,116 | +49.56 | 3,248 | 1,554 | +109.01 | 2,794 | 2,481 | +12.64 |
| Dec. 17 | 21,745 | 13,717 | + 58.53 | 5,895 | 4,148 | +42.14 | 2,959 | 1,487 | + 98.88 | 2,822 | 2,577 | + 9.52 |
| Dec. 24 | 29,302 | 14,203 | +106.31 | 5,388 | 4,457 | +20.87 | 2,357 | 1,302 | + 80.96 | 2,896 | 3,058 | – 5.28 |

Receipts of live poultry at Central West country packing plants showed seasonal increases during most of the fall months. Since the last week of November, however, the trend has shifted, and smaller quantities have been received on succeeding weeks although December receipts will average around 40 per cent heavier than last year. Young stock continues to constitute the bulk of this volume, running close to 100 per cent above those of last year during the past few weeks. Receipts of dressed poultry including turkeys, at the four Eastern markets during December have been some 20 per cent greater than last year, which is a larger percentage increase than in the other months since mid-summer. Calendar year receipts now show an increase over 1937.

—Comment from Monthly Egg and Poultry Markets Review.

## Egg-Feed Ratios

### New York Egg-Feed Ratio

| Week Ending | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1938 | 1937 | 1936 | Av. Egg Price per Doz. (Dollars) 1938 | 1937 | 1936 | Av. Feed Cost per 100 lbs. (Dollars) 1938 | 1937 | 1936 |
|---|---|---|---|---|---|---|---|---|---|
| December 1 | 4.4 | 6.4 | 7.0 | .349 | .277 | .353 | 1.54 | 1.77 | 2.49 |
| December 8 | 4.7 | 6.7 | 7.3 | .338 | .265 | .340 | 1.60 | 1.78 | 2.49 |
| December 15 | 4.8 | 6.1 | 7.75 | .340 | .296 | .322 | 1.63 | 1.80 | 2.50 |
| December 22 | 4.9 | 5.9 | 7.7 | .333 | .306 | .330 | 1.63 | 1.82 | 2.54 |
| December 29 | 5.1 | 6.2 | 8.2 | .324 | .293 | .310 | 1.64 | 1.82 | 2.54 |

### Chicago Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration 1938 | 1937 | 10-Yr. Av. 1928-37 | Price of Fresh Graded Firsts (Dollars) 1938 | 1937 | Cost of Ration per 100 lbs. (Dollars) 1938 | 1937 |
|---|---|---|---|---|---|---|---|
| November 26 | 3.48 | 4.49 | 4.04 | .275 | .248 | .957 | 1.115 |
| December 3 | 3.56 | 4.79 | 4.09 | .275 | .232 | .978 | 1.115 |
| December 10 | 3.86 | 4.85 | 4.30 | .262 | .237 | 1.014 | 1.153 |
| December 17 | 4.01 | 4.55 | 4.52 | .259 | .257 | 1.039 | 1.173 |
| December 24 | 4.36 | 4.87 | 4.61 | .238 | .241 | 1.038 | 1.175 |

## Egg and Poultry Exports and Imports

### Exports of Eggs and Poultry

| Kind | | November 1938 | November 1937 | Jan. to Nov., Inc. 1938 | Jan. to Nov., Inc. 1937 |
|---|---|---|---|---|---|
| Eggs in Shell | (dozs.) | 134,806 | 178,286 | 1,891,105 | 2,122,302 |
| Eggs & Yolks, frozen, dried, or canned | (lbs.) | Not available | 9,691 | Not available | 188,711 |
| Live Poultry | (lbs.) | 5,743 | 6,716 | 70,645 | 68,177 |
| Dressed Poultry | (lbs.) | 170,345 | 93,179 | 1,616,783 | 1,497,822 |
| **Imports of Eggs and Poultry** | | | | | |
| Eggs in Shell | (dozs.) | 27,116 | 26,834 | 209,960 | 494,745 |
| Whole Eggs, dried | (lbs.) | 20,200 | 19,572 | 168,815 | 565,919 |
| Whole Eggs, frozen | (lbs.) | 0 | 0 | 938 | 25,412 |
| Yolks, Dried | (lbs.) | 61,894 | 231,349 | 317,219 | 5,171,908 |
| Yolks, Frozen | (lbs.) | 46,410 | 15,000 | 476,630 | 1,454,542 |
| Egg Albumen, dried | (lbs.) | 107,607 | 148,473 | 630,346 | 2,690,673 |
| Egg Albumen, frozen | (lbs.) | 0 | 0 | 30 | 0 |
| Live Poultry | (lbs.) | 84,600 | 796,846 | 1,194,482 | 4,351,038 |
| Dressed Poultry | (lbs.) | 16,208 | 99,753 | 499,964 | 407,736 |
| Poultry prepared | (lbs.) | 28,992 | 95,158 | 460,810 | 651,650 |

## Poultry in Storage

### Storage Holdings of Frozen Poultry

| Kind | December 1 5-Year Avg. 1933-37 | December 1 1937 | November 1 1938 | December 1 1938 | % Change Dec.'37-Dec.'38 |
|---|---|---|---|---|---|
| | | (Thousand Pounds) | | | |
| Broilers | 16,776 | 9,963 | 10,759 | 11,462 | +15.0 |
| Fryers | 12,352 | 10,234 | 7,283 | 12,526 | +22.4 |
| Roasters | 24,135 | 21,624 | 15,253 | 25,727 | +18.9 |
| Fowls | 18,807 | 19,919 | 12,943 | 18,466 | – 7.3 |
| Turkeys | 12,668 | 19,695 | 3,899 | 17,902 | – 9.1 |
| Ducks | 5,121 | 7,821 | 10,780 | 9,294 | +18.8 |
| Miscellaneous | 18,343 | 19,490 | 16,775 | 22,460 | +15.2 |
| Total | 108,202 | 108,746 | 77,692 | 117,837 | + 8.3 |

## Eggs in Storage

### Storage Holdings of Eggs

| Kind | December 1 5-Year Avg. 1933-37 | December 1 1937 | November 1 1938 | December 1 1938 | % Change Dec. '37-Dec. '38 |
|---|---|---|---|---|---|
| Shell Eggs (cases) | 2,437 | 2,672 | 3,244 | 1,441 | –46.0 |
| Frozen Eggs (lbs.) | 82,939 | 120,929 | 94,305 | 78,116 | –35.4 |
| Frozen Case* Equivalent (cases) | 2,370 | 3,455 | 2,694 | 2,232 | –35.5 |
| Total (cases) | 4,807 | 6,127 | 5,938 | 3,673 | –40.0 |

* Frozen eggs are converted on the basis of 35 lbs. to the case.

## Egg Breaking Operations

**Egg Breaking Operations During November 1938**

| Commodity | | Quantities reported to date for Nov. 1938 | Same firm comparisons | | |
|---|---|---|---|---|---|
| | | | Nov. 1938 | Nov. 1937 | % change in 1938 |
| | | Pounds | Pounds | | Pounds |
| Whole Eggs (nothing added) | | 161,650 | 161,650 | 263,022 | – 38.54 |
| Mixed Eggs (emulsions, also with sugar, salt, malt, etc. added) | | 66,090 | 66,090 | 19,090 | +246.20 |
| Egg Whites (all descriptions) | | 52,273 | 52,273 | 86,960 | – 39.89 |
| Egg Yolks Packed | Without salt, sugar, etc. | 39,966 | 39,966 | 69,978 | – 42.89 |
| | With sugar | 1,380 | 1,380 | 2,926 | – 52.84 |
| | With salt | 0 | 0 | 0 | – |
| | All yolk emulsions, including glycerine | 0 | 0 | 0 | – |
| Total—pounds | | 321,359 | 321,359 | 441,976 | – 27.29 |
| Total—case egg equivalent | | 9,187 | 9,187 | 12,628 | – |
| Number of firms reporting | | 32 | 32 | 32 | |

## Hatchery Operations

**Eggs Set, Chicks Hatched, and Chicks Booked by Commercial Hatcheries**

| Geographic Section | No. of plants | Eggs Set During November (Thousands) | | | Salable Chicks Hatched During November (Thousands) | | | Chicks Booked Dec. 1 for Dec. or later delivery | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1938 | 1937 | % chg. | 1938 | 1937 | % chg. | No. of plants | 1938 (Thousands) | 1937 | % chg. |
| N. Eng. | 11 | 1,100 | 979 | +12 | 868 | 1,047 | –17 | 16 | 1,945 | 1,883 | + 3 |
| Mid. Atl. | 13 | 414 | 283 | +46 | 246 | 180 | 37 | 12 | 571 | 466 | +23 |
| S. Atl. | 17 | 387 | 284 | +36 | 270 | 181 | 49 | 15 | 633 | 508 | +25 |
| Central | 33 | 632 | 393 | +61 | 338 | 243 | 39 | 33 | 871 | 263 | +41 |
| TOTAL | 74 | 2,533 | 1,939 | +31 | 1,722 | 1,651 | 4 | 76 | 3,520 | 3,120 | +13 |

❛❛ IT WAS quite a turkey Frank Prucha and his family had for New Year's dinner. In the first place, Prucha won the bird in a bowling tournament. Secondly, when Prucha sank his carving knife into the bird, the knife struck something hard and glittering. It was a gold nugget the size of a pea. The Prucha family ate the turkey, then turned in the gold for $1.50.

—Newspaper Article.

❛❛ THE "oyster" or turkey tenderloin is a small oval of exceptionally delicious dark meat in the hollow of the back of the turkey, just in front of the hip socket joint.

—News Release, University of New Hampshire.

# RESULTS OF LAYING TESTS

SOUTHERN and western tests are giving eastern tests a good "run for their money" as laying trials ended the second month of their 51-week grind in the 1938-39 test run. First five tests to December 1 in average production are Georgia, Texas, Florida, Oklahoma and Arizona.

Kauder's Leghorns topped all other pens for November with 367.35 points. Lonnie Van Sant's Black Australorp hen piled up 32.90 points from 30 eggs, almost a perfect score for the month.

### Warren Reds Hold on to Lead

J. J. Warren's Rhode Island Reds at Passaic, N. J., maintain their leadership over the 1139 other standard test pens, with 688 eggs and 682.05 points for the 61 days. A. E. Guinn has the leading hen among the 14,820 individuals, with 60 eggs and 64.30 points at Georgia.

Booth Farms and Hatchery's entry at Oklahoma rates as second highest pen of all breeds at all tests to December 1 and stands high in its breed. Warren's Passaic pen tops all other Rhode Island Reds. Out in front in the New Hampshire division are A. J. William's birds at Florida. Dryden Poultry Breeding Farm's pen at Missouri is leading the way in the Barred Rock group. Oscar W. Holtzapple's Georgia pen of White Rocks lead in their breed through the second month.

The stiffest competition in any one breed is among White Leghorns, where less than 30 points separate Booth Farms' first and tenth place pens. Nelson's Leghorns have a close second, Guy A. Leader occupies third place, Foreman fourth, Kauder fifth and sixth, with Seidel, Gulfkist Poultry Farm and Erath Egg Farm in seventh, eighth and ninth positions.

The Storrs Test and the New York State Test on Long Island started a week late due to the hurricane, and will make up lost time next September.

## High Pen Each Breed to December 1—(61Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| J. J. Warren | Rhode Island Red | 688 | 682.50 | Passaic, N. J. |
| Booth Farms and Hatchery | White Leghorn | 636 | 646.30 | Oklahoma |
| A. J. Williams | New Hampshire | 635 | 640.05 | Florida |
| Dryden Poultry Breeding Farm | Bd. Rock | 591 | 579.05 | Missouri |
| Oscar W. Holtzapple | White Rock | 592 | 562.40 | Georgia |
| Colonial Poultry Farm | White Wyandotte | 562 | 561.90 | Texas |
| Lonnie Van Sant | Black Australorp | 460 | 448.15 | Arizona |
| Lindstrom Poultry Farm | Buff Minorca | 472 | 443.30 | Missouri |
| Ben G. Monroe | Ancona | 440 | 420.65 | Texas |
| Colonial Poultry Farm | White Minorca | 409 | 405.60 | Georgia |
| Raymond Murphy | White Giant | 340 | 349.50 | Missouri |
| Henry F. Waitt | Silver Laced Wyandotte | 322 | 300.30 | Maine |
| S. E. Raymond | Lamona | 269 | 278.15 | Storrs |
| Laclede Hatchery | Buff Orpington | 320 | 269.90 | Florida |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 216 | 212.60 | Maine |
| Harry L. Phillips | Columbian Rock | 217 | 209.60 | Missouri |
| Missouri Valley Hatchery | Buff Leghorn | 250 | 192.85 | Maine |
| Blue Ribbon Farm | Rhode Island White | 203 | 189.60 | Texas |
| Cedarlaid Poultry Farm | Brown Leghorn | 227 | 177.10 | Florida |
| Hall Brothers Hatchery | Cross | 108 | 106.30 | New York State |

## High Pen in Each Standard Test for November

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leg. | 350 | 367.35 | Storrs |
| Clinard Hatchery | Rhode Island Red | 339 | 346.60 | Oklahoma |
| J. J. Warren | Rhode Island Red | 340 | 345.45 | Passaic, N. J. |
| Redbird Farm | Rhode Island Red | 329 | 329.05 | Maine |
| Guy A. Leader | White Leghorn | 332 | 328.70 | Pennsylvania |
| Erath Egg Farm | White Leghorn | 319 | 326.75 | Texas |
| Booth Farms and Hatchery | White Leghorn | 322 | 325.30 | Georgia |
| A. J. Williams | New Hampshire | 318 | 325.05 | Florida |
| Booth Farms and Hatchery | White Leghorn | 299 | 322.30 | Missouri |
| Thomas Mettler | Rhode Island Red | 329 | 322.20 | Hunterdon, N. J. |
| Rochelle Hatchery | White Leghorn | 312 | 313.85 | Michigan |
| R. E. & F. H. Kendrick | Rhode Island Red | 285 | 298.50 | Rhode Island |
| Colonial Poultry Farm | New Hampshire | 293 | 292.20 | Arizona |
| Dryden Poultry Breeding Farm | Bd. Rock | 294 | 284.60 | Central New York |
| Dryden Poultry Breeding Farm | White Leg. | 282 | 277.75 | Western New York |
| Harry A. Schnell | White Leghorn | 285 | 273.95 | New York State |

## Twenty Highest Pens, All Breeds, All Tests, to December 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| J. J. Warren | Rhode Island Red | 688 | 682.05 | Passaic, N. J. |
| Booth Farms and Hatchery | White Leghorn | 636 | 646.30 | Oklahoma |
| Nelson's Leghorn Breeding Farm | White Leg. | 641 | 644.65 | Texas |
| A. J. Williams | New Hampshire | 635 | 640.05 | Florida |
| Guy A. Leader | White Leghorn | 656 | 634.45 | Pennsylvania |
| Foreman Poultry Farm | White Leghorn | 638 | 633.00 | Michigan |
| Kauder's Pedigreed Leghorns | White Leg. | 611 | 630.30 | Storrs |
| Kauder's Pedigreed Leghorns | White Leg. | 634 | 627.90 | Georgia |
| W. A. Seidel | White Leghorn | 617 | 626.40 | Texas |
| Vans R. Otey | Rhode Island Red | 634 | 626.10 | Florida |
| Gulfkist Poultry Farm | White Leghorn | 631 | 624.65 | Florida |
| Eben Wood | New Hampshire | 618 | 623.70 | Maine |
| J. J. Warren | Rhode Island Red | 601 | 623.45 | Storrs |
| Wegatepa Farms | Rhode Island Red | 610 | 621.55 | Maine |
| Erath Egg Farm | White Leghorn | 629 | 618.80 | Texas |
| R. E. & F. H. Kendrick | Rhode Island Red | 605 | 617.50 | Rhode Island |
| Booth Farms and Hatchery | White Leghorn | 616 | 617.45 | Florida |
| Booth Farms and Hatchery | White Leghorn | 617 | 617.40 | Georgia |
| Clinard Hatchery | Rhode Island Red | 618 | 613.90 | Oklahoma |
| Rochelle Hatchery | White Leghorn | 631 | 613.50 | Michigan |

## High Pen in Each Standard Test to December 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| J. J. Warren | Rhode Island Red | 688 | 682.05 | Passaic, N. J. |
| Booth Farms and Hatchery | White Leghorn | 636 | 646.30 | Oklahoma |
| Nelson's Leghorn Breeding Farm | White Leg. | 641 | 644.65 | Texas |
| A. J. Williams | New Hampshire | 635 | 640.05 | Florida |
| Guy A. Leader | White Leghorn | 656 | 634.45 | Pennsylvania |
| Foreman Poultry Farm | White Leghorn | 638 | 633.00 | Michigan |
| Kauder's Pedigreed Leghorns | White Leg. | 611 | 630.30 | Storrs |
| Kauder's Pedigreed Leghorns | White Leg. | 634 | 627.90 | Georgia |
| Eben Wood | New Hampshire | 618 | 623.70 | Maine |
| R. E. & F. H. Kendrick | Rhode Island Red | 605 | 617.50 | Rhode Island |
| Booth Farms and Hatchery | White Leg. | 579 | 607.60 | Missouri |
| Cane Poultry Farm | Rhode Island Red | 605 | 599.60 | Hunterdon, N. J. |
| Kauder's Pedigreed Leghorns | White Leg. | 585 | 572.75 | Western New York |
| Dryden Poultry Breeding Farm | White Leg. | 609 | 571.10 | Central New York |
| Colonial Poultry Farm | New Hampshire | 504 | 487.65 | Arizona |
| J. J. Warren | Rhode Island Red | 490 | 482.15 | New York State |

## High Hen in Each Standard Test for November

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Lonnie Van Sant | Black Australorp | 30 | 32.90 | Arizona |
| W. A. Seidel | White Leghorn | 30 | 32.85 | Texas |
| Thomas Mettler | Rhode Island Red | 30 | 32.80 | Hunterdon, N. J. |
| A. E. Guinn | White Leghorn | 30 | 32.70 | Georgia |
| Kauder's Pedigreed Leghorns | White Leg. | 30 | 32.55 | Storrs, Conn. |
| E. B. Parmenter | Rhode Island Red | 30 | 32.00 | Pennsylvania |
| Lamar W. Sexton | New Hampshire | 29 | 31.85 | Passaic, N. J. |
| E. H. Dansby | Rhode Island Red | 29 | 31.85 | Florida |
| Weber Duck Farm | Rhode Island Red | 29 | 31.75 | Michigan |
| J. J. Warren | Rhode Island Red | 29 | 31.50 | Rhode Island |
| E. B. Parmenter | Rhode Island Red | 30 | 31.25 | Maine |
| Booth Farms and Hatchery | White Leghorn | 28 | 30.80 | Missouri |
| J. J. Warren | Rhode Island Red | 29 | 30.65 | New York State |
| Cedarhurst Poultry Farm | White Leghorn | 29 | 30.50 | Western New York |
| Clinard Hatchery | Rhode Island Red | 28 | 30.50 | Oklahoma |
| J. A. Hanson | White Leghorn | 28 | 29.05 | Central New York |

## High Hen Each Breed to December 1—(61Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| A. E. Guinn | White Leghorn | 60 | 64.30 | Georgia |
| J. J. Warren | Rhode Island Red | 58 | 62.05 | Maine |
| Lamar W. Sexton | New Hampshire | 56 | 60.60 | Passaic, N. J. |
| Oscar W. Holtzapple | White Rock | 56 | 59.20 | Georgia |
| Dryden Poultry Breeding Farm | Bd. Rock | 57 | 58.70 | Missouri |
| Lindstrom Poultry Farm | White Wyandotte | 52 | 55.60 | Georgia |
| Raymond Murphy | White Giant | 51 | 53.15 | Missouri |
| E. S. McSweeny | Black Australorp | 49 | 50.75 | Arizona |
| Colonial Poultry Farm | White Minorca | 48 | 47.80 | Georgia |
| Henry F. Waitt | Silver Laced Wyandotte | 42 | 44.75 | Maine |
| Thomas Poultry Farm | Ancona | 44 | 44.45 | Storrs |
| Lindstrom Poultry Farm | Buff Minorca | 46 | 44.15 | Missouri |
| S. E. Raymond | Lamona | 40 | 43.55 | Storrs |
| Harry L. Phillips | Columbian Rocks | 39 | 41.20 | Missouri |
| Blue Ribbon Farm | Rhode Island White | 38 | 39.80 | Texas |
| Missouri Valley Hatchery | Buff Leghorn | 46 | 34.35 | Maine |
| Laclede Hatchery | Buff Orpington | 37 | 33.30 | Florida |
| Cedarlaid Poultry Farm | Brown Leghorn | 41 | 32.85 | Florida |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 32 | 32.45 | Maine |
| Hall Brothers Hatchery | Cross | 25 | 26.65 | New York State |

## High Hen in Each Standard Test to December 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| A. E. Guinn | White Leghorn | 60 | 64.30 | Georgia |
| J. J. Warren | Rhode Island Red | 58 | 62.05 | Maine |
| Weber Duck Farm | Rhode Island Red | 57 | 61.95 | Michigan |
| E. H. Dansby | Rhode Island Red | 57 | 61.50 | Florida |
| Lamar W. Sexton | New Hampshire | 56 | 60.60 | Passaic, N. J. |
| Bryan J. Snell | White Leghorn | 57 | 59.70 | Pennsylvania |
| W. A. Seidel | White Leghorn | 55 | 59.65 | Texas |
| E. B. Parmenter | Rhode Island Red | 55 | 59.55 | Rhode Island |
| Dryden Poultry Breeding Farm | Bd. Rock | 57 | 58.70 | Missouri |
| David T. Cohen | Barred Rock | 58 | 58.25 | Arizona |
| Kauder's Pedigreed Leghorns | White Leg. | 53 | 57.05 | Storrs |
| Baker Poultry Farm | White Leghorn | 57 | 56.70 | Central New York |
| Creighton Brothers | White Leghorn | 53 | 56.30 | Hunterdon, N. J. |
| Douglaston Manor Farm | Rhode Island Red | 54 | 55.75 | Western New York |
| Booth Farms and Hatchery | White Leghorn | 52 | 55.65 | Oklahoma |
| J. J. Warren | Rhode Island Red | 52 | 50.80 | New York State |

## 20 Highest White Leghorn Pens in Country to December 1

| Owner | Eggs to Dec. 1 | Points to Dec. 1 | Test |
|---|---|---|---|
| Booth Farms and Hatchery | 636 | 646.30 | Oklahoma |
| Nelson's Leghorn Breeding Farm | 641 | 644.65 | Texas |
| Guy A. Leader | 656 | 634.45 | Pennsylvania |
| Foreman Poultry Farm | 638 | 633.00 | Michigan |
| Kauder's Pedigreed Leghorns | 611 | 630.30 | Storrs |
| Kauder's Pedigreed Leghorns | 634 | 627.90 | Georgia |
| W. A. Seidel | 617 | 626.40 | Texas |
| Gulfkist Poultry Farm | 631 | 624.65 | Florida |
| Erath Egg Farm | 629 | 618.80 | Texas |
| Booth Farms and Hatchery | 616 | 617.45 | Florida |
| Booth Farms and Hatchery | 617 | 617.40 | Georgia |
| Rochelle Hatchery | 631 | 613.50 | Michigan |
| Booth Farms and Hatchery | 579 | 607.60 | Missouri |
| W. A. Seidel | 599 | 604.45 | Texas |
| Woodlawn Farm | 582 | 604.10 | Texas |
| A. E. Guinn | 635 | 599.30 | Georgia |
| A. E. Guinn | 654 | 598.80 | Georgia |
| Roselawn Poultry Farm | 685 | 598.00 | Georgia |
| Dublin Poultry Farm | 626 | 597.65 | Georgia |
| Booth Farms and Hatchery | 589 | 596.65 | Missouri |

## 20 Highest Rhode Island Red Pens in Country to December 1

| Owner | Eggs to Dec. 1 | Points to Dec. 1 | Test |
|---|---|---|---|
| J. J. Warren | 688 | 682.05 | Passaic, N. J. |
| Vans R. Otey | 634 | 626.10 | Florida |
| J. J. Warren | 601 | 623.45 | Storrs |
| Wegatepa Farms | 610 | 621.55 | Maine |
| R. E. & F. H. Kendrick | 605 | 617.50 | Rhode Island |
| Clinard Hatchery | 618 | 613.90 | Oklahoma |
| Cane Poultry Farm | 605 | 599.60 | Hunterdon, N. J. |
| Weber Duck Farm | 647 | 599.40 | Georgia |
| Ralph W. Anderson | 583 | 596.20 | Storrs |
| Stanley V. Madison | 569 | 593.10 | Rhode Island |
| J. J. Warren | 592 | 584.65 | Storrs |
| Thomas Mettler | 606 | 579.30 | Hunterdon, N. J. |
| Lindstrom Poultry Farm | 567 | 578.95 | Missouri |
| Homestead Farm | 571 | 570.10 | Storrs |
| Booth Farms | 585 | 564.85 | Oklahoma |
| Redbird Farm | 568 | 562.60 | Maine |
| E. B. Parmenter | 562 | 557.90 | Rhode Island |
| George A. Pearce | 597 | 557.25 | Hunterdon, N. J. |
| Globus Poultry Farm | 563 | 550.90 | Maine |
| J. J. Warren | 547 | 547.85 | Pennsylvania |

## 20 Highest New Hampshire Pens in Country to December 1

| Owner | Eggs to Dec. 1 | Points to Dec. 1 | Test |
|---|---|---|---|
| A. J. Williams | 635 | 640.05 | Florida |
| Eben Wood | 618 | 623.70 | Maine |
| Pine Top Poultry Farm | 560 | 585.40 | Maine |
| Quimby School | 640 | 584.75 | Maine |
| Pine Mountain Valley Farms | 567 | 584.20 | Georgia |
| Thomas J. Harrold | 626 | 582.40 | Georgia |
| A. J. Williams | 578 | 568.50 | Florida |
| Steelman Poultry Farms | 565 | 561.35 | Storrs |
| James H. Horne | 550 | 533.45 | Maine |
| W. H. Boulware | 548 | 531.75 | Florida |
| Fuzzydele Farms | 502 | 518.95 | Pennsylvania |
| Hubbard Farms | 537 | 510.90 | Storrs |
| Colonial Poultry Farms | 504 | 487.65 | Arizona |
| Hubbard Farms | 510 | 475.55 | Western New York |
| Pine Top Poultry Farm | 443 | 472.00 | Maine |
| S. C. Houck | 489 | 471.50 | Pennsylvania |
| W. H. Boulware | 496 | 467.20 | Georgia |
| Fuzzydele Farms | 496 | 466.50 | Western New York |
| H. S. & M. E. Twichell | 481 | 464.30 | Western New York |
| Pine Top Poultry Farm | 428 | 447.00 | Georgia |

## 20 Highest Barred Plymouth Rock Pens in Country to December 1

| Owner | Eggs to Dec. 1 | Points to Dec. 1 | Test |
|---|---|---|---|
| Dryden Poultry Breeding Farm | 591 | 579.05 | Missouri |
| Dryden Poultry Breeding Farm | 605 | 567.90 | Central New York |
| Eben Wood | 580 | 556.45 | Maine |
| Weber Duck Farm | 596 | 551.45 | Maine |
| Weber Duck Farm | 559 | 527.00 | Georgia |
| Fuzzydele Farms | 516 | 492.70 | Storrs |
| Woody Hatchery and Poultry Farm | 553 | 484.40 | Georgia |
| J. W. Schaible | 533 | 480.60 | Hunterdon, N. J. |
| David T. Cohen | 499 | 475.90 | Central New York |
| Weber Duck Farm | 469 | 450.40 | Florida |
| Saline Valley Farms | 466 | 440.85 | Michigan |
| Booth Farms and Hatchery | 509 | 440.30 | Florida |
| Veber Duck Farm | 442 | 436.65 | Passaic, N. J. |
| Dryden Poultry Breeding Farm | 481 | 434.65 | Pennsylvania |
| Colonial Poultry Farm | 456 | 432.50 | Georgia |
| Dryden Poultry Breeding Farm | 477 | 431.80 | Storrs |
| Riley Poultry Farm | 449 | 431.20 | Georgia |
| David T. Cohen | 458 | 429.95 | Arizona |
| Booth Farms and Hatchery | 497 | 421.60 | Georgia |
| R. C. E. Wallace | 433 | 417.85 | Oklahoma |

## 20 Highest White Plymouth Rock Pens in Country to December 1

| Owner | Eggs to Dec. 1 | Points to Dec. 1 | Test |
|---|---|---|---|
| Oscar W. Holtzapple | 592 | 562.40 | Georgia |
| T. S. Townsley | 524 | 512.70 | Georgia |
| Booth Farms | 462 | 457.40 | Missouri |
| Homestead Farm | 495 | 454.45 | Pennsylvania |
| Tender Broiler Hatchery | 483 | 449.65 | Oklahoma |
| Holtzapple Poultry Farm | 467 | 446.05 | Michigan |
| Oscar W. Holtzapple | 467 | 441.00 | Pennsylvania |
| Kalerok Farm | 435 | 440.50 | Rhode Island |
| Earl C. Dunham | 450 | 430.50 | Georgia |
| Albert C. Lawton | 418 | 421.55 | Rhode Island |
| E. A. Hirt | 427 | 412.55 | Storrs |
| Red Barn Poultry Farm | 424 | 404.65 | Storrs |
| Kalerok Farm | 406 | 402.50 | Storrs |
| Albert C. Lawton | 402 | 387.10 | Storrs |
| Riley Poultry Farm | 438 | 386.80 | Oklahoma |
| Faith Farm | 401 | 374.15 | New York State |
| Lewis Farms | 402 | 372.10 | Rhode Island |
| Kalerok Farm | 372 | 370.50 | Pennsylvania |
| E. C. Wegener | 374 | 368.70 | Oklahoma |
| F. L. Woodworth and Gies Hatchery | 376 | 362.25 | Michigan |

## Average Production in Each Test to December 1

| Test | No. Birds | Eggs Per Bird | Points Per Bird | Per Cent Mortality for Nov. | Per Cent Mortality to Dec. 1 |
|---|---|---|---|---|---|
| Georgia | 1,300 | 36.44 | 33.57 | 2.69 | 3.46 |
| Texas | 910 | 33.19 | 32.17 | 1.86 | 2.41 |
| Florida | 1,248 | 31.52 | 29.18 | 1.20 | 1.84 |
| Oklahoma | 650 | 30.65 | 28.90 | 1.07 | 1.53 |
| Arizona | 260 | 30.44 | 28.87 | 1.92 | 1.92 |
| Hunterdon, New Jersey | 650 | 30.37 | 28.72 | .92 | 1.07 |
| Storrs, Connecticut* | 1,300 | 29.73 | 28.58 | .92 | 1.07 |
| Western New York | 884 | 30.20 | 28.01 | .67 | .67 |
| Pennsylvania | 1,131 | 29.30 | 27.71 | .53 | .70 |
| Passaic, New Jersey | 1,001 | 28.62 | 26.95 | 1.19 | 1.49 |
| Michigan | 897 | 27.92 | 26.54 | 1.44 | 2.00 |
| Rhode Island | 650 | 25.12 | 24.90 | 1.53 | 2.00 |
| Maine | 1,027 | 26.08 | 24.47 | 1.46 | 1.65 |
| Missouri | 780 | 24.00 | 23.63 | 2.43 | 2.43 |
| Central New York | 910 | 24.97 | 23.29 | .43 | .43 |
| New York State* | 1,222 | 20.78 | 19.02 | 2.29 | 2.29 |

* One week behind other tests in opening because of hurricane.

### High Pen, Each Breed, in Illinois Non-Standard Test to Dec. 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Mrs. Curtis Manshak | White Rock | 164 | 155.55 |
| Walter Swanson | White Leghorn | 128 | 119.95 |
| Mapleside Poultry Farm | Barred Rock | 121 | 114.20 |
| Corn Belt Hatchery | New Hampshire | 101 | 103.60 |
| Wallace Moody | Buff Rock | 94 | 81.95 |
| Corn Belt Hatchery | Rhode Island Red | 72 | 68.40 |
| Belldear Hatchery | White Wyandotte | 76 | 67.40 |
| Macomb Hatchery | Buff Orpington | 32 | 29.65 |
| H. R. Harnes | Brown Leghorn | 9 | 7.70 |

### 5 High Pens, R. O. P. Progeny Test, Paterson, N. J. to Dec. 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Wegatepa Farms | Rhode Island Red | 607 | 588 |
| E. H. Bodine | White Leghorn | 589 | 542 |
| Stroehlein Brothers | White Leghorn | 553 | 542 |
| Oak Knoll Poultry Farm | White Leghorn | 572 | 530 |
| R. A. Hopkinson | White Leghorn | 516 | 518 |

### High Pen, Each Breed, Vineland, N. J. Hen Test to Dec. 1

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Sebold Poultry Farm | White Leghorn | 228 | 246.45 | Two-Year |
| J. J. Warren | Rhode Island Red | 159 | 167.85 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 63 | 67.40 | Two-Year |
| Nedlar Farm | New Hampshire | 42 | 45.65 | Two-Year |
| J. A. Hanson | White Leghorn | 210 | 227.90 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 117 | 123.95 | Four-Year |
| Raymond Gardner | White Rock | 22 | 23.95 | Four-Year |

### High Pen, Each Breed, Vineland, Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| J. J. Warren | Rhode Island Red | 4028 | 4351.65 | Two-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 3967 | 4184.65 | Two-Year |
| Nedlar Farm | New Hampshire | 3674 | 3942.85 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 3106 | 3261.55 | Two-Year |
| J. A. Hanson | White Leghorn | 6114 | 6568.65 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 8781 | 9241.65 | Four-Year |
| Raymond Gardner | White Rock | 4974 | 5267.10 | Four-Year |

### High Pen, Each Breed in Pennsylvania Hen Test to Dec. 1

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| John Schrope | White Leghorn | 365 | 394.25 | Two-Year |
| Fuzzydele Farms | New Hampshire | 263 | 284.80 | Two-Year |
| E. B. Parmenter | Rhode Island Red | 256 | 279.00 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 112 | 121.40 | Two-Year |
| A. M. Wolgemuth | White Leghorn | 163 | 176.55 | Three-Year |
| Fuzzydele Farms | Barred Rock | 140 | 152.65 | Three-Year |

### High Pen, Each Breed in Pennsylvania Hen Test—Lifetime Recor

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| J. A. Hanson | White Leghorn | 3939 | 4198.85 | Two-Year |
| E. B. Parmenter | Rhode Island Red | 3592 | 3764.50 | Two-Year |
| Fuzzydele Farms | New Hampshire | 3337 | 3472.50 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 3282 | 3448.80 | Two-Year |

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INTENTIONAL 2ND EXPOSURE

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While our list of charter subscribers was small, it is evident that many of you took occasion to mention the Digest to other likely prospects. This spirit of cooperation and helpfulness is appreciated.

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Vol. I, No. 2 February, 1939

## Workers Needed for Seventh World's Poultry Congress

*Reprinted from a Folder Prepared and Issued by the Seventh World's Poultry Congress*

YOU have heard much about The Seventh World's Poultry Congress and Exposition to be held in Cleveland, Ohio, July 28th to August 7th this year. You have a part in that Congress as do all of us who get our livelihood from the poultry industry. This is our one great opportunity to publicize, advertise, promote and sell our huge poultry and egg industry to the American people. Will you do your part?

A nation-wide "membership in the Congress" campaign is being carried on. The most effective help you can give is to donate a few days of your time and your sales ability. There is a Congress organization in your state and in your county. These organizations need personnel to get the job done. Your county membership quota is not large. Someone must sell these membership books to the banker, the produce dealer, the hatcheryman, the feed dealer, the lumber yard man, the druggist, to all who in any way derive income from the poultry industry.

### Would More Poultry Money Help You?

Is your business such that the amount of "poultry money" in the United States makes a difference to you? Almost everyone gets his livelihood in part at least from poultry. The banker, the butcher, the baker, the feed man, the truck manufacturer, and ever so many more lines of business will profit from an increase in poultry earnings.

The producer, no matter where his farm is located, is vitally interested. The Congress is in Cleveland it is true, but this is more than just a Congress and Exposition. It is a great dramatization of all poultry activities

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and an awakening of interest in poultry and poultry products as a food. Whether living in Maine or California, he who has poultry products to sell will find a better market and a higher price because of the Congress. The more complete and thorough a job is done by the Congress, the better the market will be.

There are over 5,000,000 farms in the U. S. on which poultry is raised. If a half, or a quarter, or even 10% of these farms would buy a membership in the World's Poultry Congress for $1.00, what a wonderful promotion job could be done with that amount of money. Hardly a one of these farmers would pass up the chance to give this industry a boost if the matter were put up to him in the proper light.

And so we say again Workers Are Needed for the World's Poultry Congress.

### The Vanishing Breakfast Egg

Time was when almost every restaurant and hotel carried the three-minute egg on its menu. If you have traveled any in the last few years, you know that seldom are such items listed any more. This change is no accident. For the last twenty years, the breakfast food people have been selling their products through keen promotion and well-handled advertising. The citrus people have done a wonderful job, too, in selling their product from a once-a-year Christmas orange to an every-morning breakfast item.

This was done without a word of protest from the poultry people. The advertisements featuring eggs for breakfast are almost as scarce as teeth in the hen that produces them. We can put Humpty-Dumpty back together again through a real job of selling. The World's Poultry Congress is a start toward that end.

Through actual demonstrations, through the printed word, through talks on the radio, and other types of approach to the public, the story of poultry as a source of food is being told in detail, so that the public not only will develop a desire to use more poultry products but will actually be told how to do so. This is practical selling because it not only creates a desire, it explains how that desire can be fulfilled.

### The Transparent Kitchen

The Transparent Kitchen is a practical way of showing through demonstration just how utilization can be made of poultry products in the human diet. In this kitchen will be prepared recipes from the World's Poultry Congress cookbook "Eggs and Poultry Around the World." This cookbook not only shows the use of eggs and poultry through recipes developed in the United States, but brings together the best recipes from all parts of the world. From this Transparent Kitchen the story of eggs and poultry will be carried through every state in the Union. It will help to sell the products of every poultry man.

### The Food Palace

In one part of the World's Poultry Congress exhibit hall there will be brought together every known use of eggs in the way of food. Through an exchange of ideas and through the development of new ideas will come a greater market. All of this takes money to perform. Consequently, help is needed. If the help comes from many, the amount needed from each is small.

### National Publicity

Six months before the opening date of the Congress over 10,000 illustrated stories in plate form had gone to the newspapers of the United States. Each was sent only after having been requested by the editor. The publicity is continuing and editors are finding this material useful and of interest to their readers. Magazines, farm papers, radio and all other mediums of reaching the consumer are being utilized. The extent to which this program can be carried will depend upon the funds available. Now would seem the time to build the poultry industry.

### Poultry Congress Highlights

The visitor to the World's Poultry Congress will see the high spots of every phase of the poultry business.

**Scientific Meetings . . .** A gathering of the poultry scientists of the entire world to discuss the newest scientific developments as they apply to poultry.

**Popular Programs . . .** Daily talks will be given which will cover practical phases of the industry. This constitutes a veritable short course in poultry production.

**Youth Program . . .** The boys and girls will have their own camp and special entertainment, judging and demonstrations by 4-H boys and girls, Future Farmers of America, and rural Boy Scouts will tend to develop further leadership for the poultry industry.

**Consumer Program . . .** A variety of daily programs, open to the public, will depict the purchase, care, refrigeration, distribution, and nutrition of poultry and eggs, presenting feature demonstrations, Style Show, Puppet Show, movies, and Parade of Nations.

**Competitive Live Bird Show . . .** At least 7500 specimens of the best in each breed of poultry will vie for ribbons at the Congress. This will include rare and unusual breeds, even to pit games. In the Pigeon Exhibit alone, over 600 pairs of all varieties and colors of pigeons will be shown.

**International Live Bird Exhibit . . .** Interesting and unique specimens of fowl from all parts of the world will be shown, including such rarities as the long-tailed fowl of Japan, the green-footed fowl of Poland, blue-egg hens from Chile, and other unusual products of the poultry yard.

**Pageant of Poultry . . .** A living American standard of perfection will show a male and female of each breed and variety of chickens, turkeys, and water fowl. Around this display will be grouped exhibits of breeders, hatcheries, and poultry organizations.

**Mammoth Trade Exposition . . .** Every company manufacturing articles used by the poultry man has been invited to exhibit its product in the Great Exposition Hall. Already the response has been sufficient to insure one of the greatest trade expositions ever held in the history of the world. This exhibit alone is well worth the time and effort of attending.

**Hall of Nations and States . . .** Here will be exhibited the special educational features prepared by each nation and state to dramatize the outstanding features of their land.

---

A THIEF, taking 18 of James Stonesifer's chickens, left a note in the hennery. "I'm leaving you two chickens so you will have eggs this morning." Stonesifer said the thief took 18 of the 20 hens other thieves left after a raid two weeks previously on his Lancaster County, Pa., farm.
—Newspaper Article.

# Here Are the Facts on Vitamin E

By L. C. Norris
Cornell University

*Condensed from Everybodys Poultry Magazine*

VITAMIN E is not one of the newer vitamins. Its discovery was first announced by Evans and his associates of the University of California in 1922. Only two animals have been definitely shown to need this vitamin. These are the rat and the chicken. In these animals vitamin E is needed to prevent the death of the growing embryo and the development of sterility in the male.

### Vitamin E Required for Hatchability and Fertility

The experimental work showing that this vitamin is essential for the maintenance of hatchability and fertility in poultry was reported by Card and his associates of the University of Illinois in 1930. These investigators fed an all-mash ration to a group of Rhode Island Red hens in which the vitamin E had been destroyed by treatment with an ether solution of ferric chloride. After being fed this ration for about six months none of the eggs of these hens hatched upon mating them with males of proven fertility. Then each of the hens was fed daily one-half c.c. of wheat germ oil, a rich source of vitamin E. An almost immediate response was obtained and within a few weeks the hatchability of the fertile eggs increased to 69.4 per cent.

Finally, the feeding of the wheat germ oil was discontinued, and within a short time afterwards, the hatchability of the fertile eggs dropped to 3.4 per cent. These results are generally accepted as establishing the fact that vitamin E is necessary for hatchability in poultry.

### Apparently, No Shortage of "E"

No reliable experimental evidence has yet been reported, demonstrating that an improvement in hatchability can be obtained by supplementing good poultry rations with extra vitamin E. Card was the first to attempt this, but the hatchability of the eggs of the group of hens fed wheat germ oil was slightly poorer than the control group.

On the other hand, Ender of the State Vitamin Institute of Norway reported a marked improvement in hatchability as a result of feeding wheat germ oil in connection with a good ration. Ender's experimental work, unfortunately, was not conducted with suitable control measures. As a consequence of this, the improved results can as well be explained by an improvement in egg production or some other cause as by the feeding of wheat germ oil.

In 1938, Davidson and Schaible of Michigan State College confirmed the earlier work of Card. They fed one group of hens a normal ration and a second group the same ration supplemented with 5 per cent of wheat germ meal. The average hatchability of the fertile eggs of the normal group was slightly but not significantly better than that of the group fed the wheat germ meal.

Further information on this problem is provided by some hatching results obtained at the Cornell Poultry Department during the hatching seasons of 1937 and 1938. In each of these years, flocks of hens of comparable quality were maintained to meet the outside demand for chicks. The 1937 flock was fed a good breeder ration containing 2 per cent of wheat germ. The 1938 flock was fed a similar ration except that it contained no wheat germ. The hatchability of 3,500 fertile eggs from the 1937 flock fed wheat germ was 76.3 per cent and that of 4,495 fertile eggs from the 1938 flock fed no wheat germ was 83.4 per cent.

In the case of another group of hens of special breeding, the 1937 flock fed wheat germ had a hatchability of fertile eggs of 84.1 per cent and the 1938 flock fed no wheat germ a hatchability of fertile eggs of 78.1 per cent. The differences obtained in this work represent normal variability. No evidence was obtained that additional vitamin E favorably influences hatchability.

### Does Not Cure Fowl Paralysis

In addition to being necessary for the maintenance of hatchability and fertility, Butler and Warren of the Montana Livestock Sanitary Board have reported the results of experimental work which they believe indicate that vitamin E plays an important role in the prevention of fowl paralysis. In curative experiments, they report recovery of hens afflicted with fowl paralysis both by feeding wheat germ oil and by injecting it intramuscularly. In farm flock experiments they report a marked reduction in loss from fowl paralysis by fortifying the ration with wheat germ oil. In neither type of experimental work were control groups of hens, fed the same ration and subjected to the same treatment except that they received no wheat germ oil maintained.

The results of Butler and Warren, in my opinion, are not subject to the interpretation which they have given them, in view of the fact that the isolation of hens seemingly suffering from fowl paralysis has resulted in recovery and in view of the fact that reduction in mortality is quite apt to occur toward the end of the laying year as a result of the death of the less disease-resistant hens. Also the changes in the ration were not limited to the addition of wheat germ oil.

Several attempts have been made to confirm the results of Butler and Warren. Sawyer of the Western Washington Agricultural Experiment Station, Cole of the Cornell Poultry Department, Jungherr of Connecticut State College and Barber of the New York State Veterinary College attempted to cure fowl paralysis by feeding wheat germ oil and by injecting it into the muscles or the body cavity. In all instances groups of non-treated hens were maintained as controls. In both the treated and the non-treated groups an occasional hen appeared to recover, but the general conclusion was that wheat germ oil and, hence, vitamin E is entirely ineffective in curing fowl paralysis.

### Injections of "E" of No Help

Jungherr, in what was believed to be a crucial experiment, partially removed lymphomatous tumors of the ovaries, a condition allied to fowl paralysis, after which the birds were treated with wheat germ oil. In spite of the treatment, the tumors increased in size four to five times. Similar negative results were reported by English workers at the 13th International Veterinary Congress.

Upp and his associates of the University of Louisiana made a study of the value of wheat germ oil in curing

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(Everybodys Poultry Magazine, February, 1939)

iritis in poultry, a disease of the eyes believed in general to be of the same origin as fowl paralysis. They fed the oil for about one month to one of two groups of hens, equally matched in severity of eye symptoms.

At the end of the experiment, the eye symptoms in the treated group were still as severe as those in the non-treated group. Upp concluded from this work that no evidence was obtained in support of the contention that vitamin E will cure grey eyes or blindness in hens in a short time.

### Michigan Tests Negative

Davidson and Schaible of Michigan State College studied the value of wheat germ meal in preventing fowl paralysis and allied conditions, using two lots of White Leghorn pullets each of which contained 90 pullets. The control lot was fed an all-mash laying ration, and the other, the same ration supplemented with 5 per cent of wheat germ meal.

At the end of the 11 months' experimental period, the mortality from fowl paralysis and allied conditions in the control lot was 25.5 per cent and that in the wheat germ meal lot 26.1 per cent. In this experiment, no evidence was obtained, therefore, that vitamin E exercises any effect in preventing the occurrence of these conditions.

Titus and his associates of the National Agricultural Research Center, Beltsville, Md., distributed 3,702 newly hatched chicks in 12 brooder houses on the range during March. To the ration of the chicks in six of the brooder houses selected at random 0.25 per cent of wheat germ oil was added and to that of the chicks in the other six houses 0.25 per cent of refined corn oil.

At 24 weeks of age, the mortality due to fowl paralysis as diagnosed on the range was 1.86 per cent in the wheat germ oil group and 1.71 per cent in the control group. These calculations were based on the original number of chicks. If the mortality had been calculated upon the number of chicks remaining after the removal of the cockerels, the mortality due to fowl paralysis would obviously have been greater than this.

The percentage of the total mortality due to fowl paralysis as positively diagnosed in the laboratory was 30.8 per cent in the wheat germ oil group and 31.8 per cent in the control group. Titus concluded that in this experiment the inclusion of 0.25 per cent of wheat germ oil in the ration did not reduce the incidence of fowl paralysis.

### Sources and Stability of Vitamin E

From the results which have just been discussed, it does not appear that hatchability can be increased or fowl paralysis and allied conditions reduced by fortifying the ration with extra vitamin E supplied either by wheat germ or by wheat germ oil. This appears logical in view of the presence of vitamin E in many of the poultry feedstuffs.

Corn, wheat, oats, the wheat by-products, alfalfa meal and fresh green grass are good sources of the vitamin. In cereals, the vitamin is concentrated in the germ. Crude corn germ oil and oat germ oil are excellent sources of vitamin E, while wheat germ oil is the richest source known. Most animal tissues and egg yolks are also good sources of the vitamin.

Except for sensitivity to rancidity, vitamin E is a very stable vitamin. It is destroyed by those oxidative changes which accompany the development of rancidity in fats and oils. In cereals and their by-products and in leafy green plants, the development of rancidity is retarded by the presence of substances, called antioxidants. It appears, therefore, that the feeding of rations which are partially deficient in vitamin E as a result of the development of rancidity is remote as long as freshly milled feedstuffs are used in poultry rations and as long as these rations move to poultry farms within a few weeks after manufacture.

**Acknowledgment**—The author wishes to express his sincere appreciation to Dr. C. W. Barber of the New York State College of Veterinary Medicine, Dr. Erwin Jungherr of Connecticut State College, Dr. H. W. Titus of the National Agricultural Research Center, Dr. C. E. Sawyer of the Western Washington Agricultural Experiment Station and Dr. C. W. Upp of Louisiana State University for permission to use unpublished data presented in this article.

## *A Description of Kosher Poultry*

Kosher poultry is that poultry which meets the requirements of and is killed in accordance with the rites of the Hebrew dietary laws. To be Kosher, a bird must have no evidence of broken bones, malformation, bruises, or disease either external or internal. Neither can there be any foreign material such as pieces of metal or wood in the throat or intestines. A bird which does not meet these requirements is "tref" but it may be sold to the Gentile trade or through non-kosher channels if it is edible in accordance with the state or city health regulations.

There is some variation in the Hebrew laws referring to the preparation of poultry. The ancient orthodox law specifies that poultry must be koshered in the home in a certain manner within 24 hours after slaughter, even though it is not immediately consumed. In order to meet such requirements, many Jewish housewives visit the slaughter houses, pick out the live bird, have it killed and take it home still warm and pick it themselves or pay a fee for picking at the slaughter house or retail shop. The feathers are, of course, set and cannot be removed so quickly or neatly as under the methods discussed when the birds are dressed in commercial packing plants.

Certain Rabbis have interpreted the Hebrew rules to permit poultry to be killed and drawn in an orthodox manner in western slaughter houses and shipped chilled or frozen. The movement of poultry thus prepared, however, is comparably small, amounting to but a few cars each year.

—American Poultry Journal
February, 1939

¶ CHICKENS that are sick with chicken pox should not be killed and disposed of if they can be kept alive, as they will recover if they can be induced to eat. There is probably no other disease of poultry with which chickens can be so sick and still recover and make profitable production later.

—Roy E. Jones in New England Homestead, Jan. 14, 1939.

# Nephritis in Caged Layers

By Clarence E. Lee
Beacon Milling Company

*Condensed from the U. S. Egg and Poultry Magazine*

THE system of housing commercial laying flocks in batteries or cages is so new that reports of research on any phase of this subject are few and far between.

Beginning in 1928 our division has been conducting research work on caged layers continuously. During the first year only 35 layers were kept in cages while during later years some 300 were kept, and beginning in the fall of 1932 the number of experimental birds in cages has been maintained at between 500 and 600.

### History of Observations

For some 10 years past we have studied the egg production, mortality, egg size, maintenance of body weight and other factors as found in these caged layers.

We have had at all times full sisters of these birds being carried in a conventional manner in ordinary laying houses.

### Occurrence and Mortality

Very early in our observations we found a terrific variation in mortality in caged birds.

The most serious cause of mortality with all groups where mortality was heavy, particularly where it ran above 20 per cent, was found to be a typical nephritis.

The percentage of the number of birds started in the flock which might be lost from this trouble during the year varies tremendously with different strains of birds, but in general might be anywhere from 5 per cent up to more than 60 per cent.

Observations on many battery plants throughout the Northeastern States showed that these results were also typical of conditions in these other plants.

### Course of the Disease

The course of the disease varies most decidedly with different individuals, even of the same breed and strain. From the time the first symptoms are noticed until the death of the affected bird, there is usually a lapse of not less than three nor more than seven weeks. No case has been recorded by us in which mortality occurred in less than two weeks, and the average is about six weeks from first symptoms.

We have never observed a single instance of natural recovery after the characteristic symptoms appeared in a bird.

### Symptoms

The first symptoms are the appearance of a greenish diarrhea. This gradually increases until no part of the droppings is normal or near normal, the whole is a green highly liquid mass, usually with a decidedly offensive odor.

Usually the bird stops laying sometime during the first week after the green droppings begin to appear. Occasionally, egg production will be carried on for a few days longer. Sometimes the last few eggs will be soft-shelled.

The face of the bird becomes pale and the comb and wattles lose most of their color. Gradually the feathers become somewhat roughened and the bird begins to lose weight.

This loss of weight continues until the bird becomes greatly emaciated. By now the loss of color, in face, comb and wattles, has become pronounced and loss of pigment in the legs and feet has usually also occurred. The face is shrunken and the comb dried down to about half its normal size. Shanks are shrunken and roughened.

The bird eats exceedingly little but drinks considerable water.

### Post-Mortem Appearances

On post-mortem examination the extreme emaciation is the first pronounced characteristic. When the abdomen is opened the lungs will usually be found pink rather than the normal good red color and the liver of normal size but very dry on the surface and darker than normal in color.

The liver tissue is firm and strong and the color on sectioning is found to be a darker brown than normal.

The intestines are usually much shrunken and are filled with the greenish liquid characteristic of the diarrhea of this disease.

However, the most typical symptom is the inflammation of the kidneys. Both kidneys are usually involved and are greatly swollen, the pink surface color being mottled with white. On sectioning, the kidney is found to carry the pink and white throughout.

No other peculiar and characteristic changes have been noted by us.

### Cause Not Identified

We have been unable to demonstrate any organism as causing or typically associated with this condition. Whether it is due to some filterable agent, or whether, as seems more likely, it is the result of a combination of lack of exercise combined with relatively high food intake, should be the subject of investigation by veterinary pathologists, and in view of the demonstrated importance of this disease in battery flocks we would especially recommend it for further investigation by such pathologists.

### Treatment

Treatment of any kind seems to be of little value. Out of one group of 18 birds suffering from this disease, a treatment with the usual dosage of Iodine Vermicide Merck, as used for intestinal worms, resulted in apparent recovery of three individuals. The use of a 40 per cent dried milk mash seemed to do no more than to delay death for a time. Tonic mixtures of various kinds seemed to be practically valueless.

### Prevention

In view of the nearly total failure of treatment tried to date, it is interesting to note the success which has attended efforts at prevention.

The selection of stock with higher constitutional vigor and vitality has proved to be the answer to this problem. Strains showing very little loss from this trouble over a period of a year have practically always shown identical results in later years. By eliminating those strains having high mortality from this and other causes, and replacing with stock bred for specially high vigor and vitality, "battery nephritis" has ceased to be a serious problem.

The only real difficulty to date seems to be in locating the proper strains of each breed, as is necessary to avoid heavy mortality from this cause in laying cages.

Institute of American Poultry Industries, 110 N. Franklin St., Chicago, Ill.
(The U. S. Egg & Poultry Magazine, November, 1938)

# Hen Battery Losses

By M. W. Emmel
Florida Agricultural Experiment Station

*Condensed from Poultry Item*

INDOOR-HEN-BATTERY mortality has been a major problem ever since the start of this method of housing birds. The mortality in most cases has been less than under floor conditions, but in some few plants it has been as high as 60 per cent.

Fowl paralysis, leukemia or "big liver disease," and emaciation have been the principal causes of mortality in the indoor-hen-battery plant. A definite syndrome also has been associated with the occurrence of these three diseases: (1) poor development of some birds most evident at maturity, (2) spasmodic egg production, and (3) molting.

The author has reported that micro-organisms of the paratyphoid group, administered by mouth during intestinal parasitism or by intravenous injection, can induce leukemia and allied conditions in the chicken. Intestinal parasitism has been considered of importance during infection, since conditions are made more favorable for the bacteria to become established in the intestinal tract and to enter the blood stream of the bird. The bacteria start a basic condition of the blood known as hemocytoblastosis (white blood cells) and then in most instances disappear from the bird.

Hemocytoblastosis is characterized by an increase, or occasionally by a decrease, in the total number of white blood cells, many of which are immature and degenerative. In some flocks hemocytoblastosis may be an entity, but in many instances birds so affected may not show symptoms of disease. Hemocytoblastosis, however, is a fundamental condition which may lead to the development of fowl paralysis and leukemia. On the other hand, birds with sufficient resistance can recover from hemocytoblastosis. During and after infection by the bacteria, hemocytoblastosis is further stimulated by the products of the bird's own degenerated blood cells. In other words, an auto-intoxication exists.

### Bad Air Starts Trouble

A study of fowl paralysis and leukemia in hen-battery plants has shown that intestinal parasites and paratyphoid bacteria are not regularly associated with the development of these diseases under these conditions. It has been found that adverse atmospheric conditions are responsible for the development of the basic process of hemocytoblastosis which leads to the development of fowl paralysis and leukemia. Bad air conditions apparently disrupt the processes concerned in the use of foodstuffs and the elimination of waste products in the body of the bird. It is in the nature of a chronic intoxication. From four to 10 months often are required for the development of fowl paralysis, leukemia and emaciation by this process. The fundamental principle involved in the development of these diseases in the hen-battery plant is essentially the same as that started by micro-organisms associated with intestinal parasitism.

Some hen-battery plant operators have discovered that removing affected birds from the battery when first symptoms are shown and replacing them outdoors results in recovery. In other instances, the installation of intake and outlet ventilating fans has been effective in reducing mortality.

The author has been conducting investigations in a room in which approximately 40 birds can be maintained without mortality. The first year 75 birds were raised in the room. Mortality began to occur during the fifth month and at the end of 12 months the population was reduced to 42. One hundred birds were placed in the same room the second year. Extensive mortality began during the fifth month and at the end of twelve months the population was reduced to 41. Thirty-eight birds were placed in the same room the third year. In this group no mortality has occurred since the first month. This indicates that there is a rather definite biologic saturation point for the environmental conditions surrounding these experiments.

The author is of the opinion that every indoor-hen-battery plant has a biologic saturation point above which mortality occurs and below which birds may be housed satisfactorily. Many hen-battery plant operators make a practice of continually replacing birds lost through mortality. In view of the above discussion such a procedure enhances a continuation of mortality. Mortality due to these diseases indicates that the plant is already overcrowded. In case dead birds are replaced, this overcrowded condition is continued and bad air conditions are maintained in the plant. The entire problem is definitely related to ventilation as associated with the hen population of the plant.

Hemocytoblastosis has been described as a fundamental process of the blood which leads to the development of fowl paralysis and leukemia. However, hemocytoblastosis must receive a certain stimulus to lead to the development of these diseases. In cases in which this certain stimulus is lacking, hemocytoblastosis without the development of fowl paralysis and leukemia occurs. In many instances there are no external indications that it is present. A bird may appear perfectly normal and have hemocytoblastosis. Birds affected with hemocytoblastosis have a reduced growth curve. Their resistance is lowered to the point at which they are more susceptible to disease, particularly respiratory diseases. A flock of growing birds affected with hemocytoblastosis will not be uniform in appearance.

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(Poultry Item, February, 1939)

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FEMALE chickens, like female humans, go through that interesting period known as the flapper age. Pullets assuming their first egg-laying responsibilities exercise a sense of caution or restraint and as a result poultry farmers each autumn receive a large number of marbles or flapper eggs.

—The South African Poultry, Pigeon & Bird Magazine.

*Obtaining Better Livability*
*Among Layers By Using . . .*

# The Strength of Germ Test

By Chas. E. Laurance
Laurance Breeding Farm, Reno, Nevada

*Condensed from The Leghorn World*

WE have been raising Leghorns for over 24 years. Our first work was mating on the performance of the dam and the sire's dam. This was a failure. Mortality was the main drawback.

So we decided on a program which was to last for five years. During that time, we trapped some 8,000 hens and saved only those that had 100 per cent fertility, hatchability and livability of progeny. At the close of this testing work we had 28 fine hens with 100 per cent marks on the three points.

Since obtaining those 28 foundation hens we have conducted many experiments to promote the main point—Livability. From this data we can show that the main qualifications of a good breeder will be fertility, hatchability and strength of germ.

You cannot obtain those points by mating on the performance of the individual hens, but to have the "stay-with-it" point, it has to be handed down several generations in most cases. Five of the original hens of the 28 saved never gave us progeny that would perform anywhere near the original family. We know with progeny that have several years of breeding for fertility and hatchability, strength of germ, and livability, you do not need to worry about production, providing everything on your farm is handled in a "poultry-business-like-way."

### Poor Fertility

Fertility has to be bred into the bird. A hen in her first year should have good fertility if she is to be retained as a breeder. We also know that if she comes from a long line of tested progeny stock that her chicks will be good, providing she is mated with a male at least two years old.

Our record charts show that the infertile hen will show a weakness of some important point other than fertility later during her life, and our work has been to rid our flocks of many undesirable breeders, thereby gaining time and saving money.

Nature provided that with each act of mating there should be enough germs secreted to fertilize hundreds of eggs and if the germs are strong enough to live, many eggs will be fertilized from such mating.

### Endurance Offered As Cure

Production will be lessened with the heat and cold snaps but fertility will stay with you if your stock have several generations of hardship in the different weather changes.

Providing the birds are healthy and the management is correct there is no food, as far as we know, that will help fertility.

Fertility comes with health, and with a foundation of health in the breeding work, the infertile eggs will be rare indeed.

From "Livability First," Leghorn World, January, 1939
The Waverly Publishing Co., Waverly, Ia.

### Necessities of Good Hatchability

Hatchability comes from health, proper feed and management, correct storage of eggs, and proper incubation.

In regard to this point in the breeder's program, we claim a discovery which when properly carried out will promote the hatchability point.

### The Strength of Germ Test

We started this test with the idea of securing hens to select eggs for long distance shipments. After several years of tabulating the birds' other points of progeny rating we found that there were many things where their offspring excelled and always it shifted back to the hens that were first in the shipments for long distance. The main points where they outranked other hens were first, naturally, hatchability, and then livability, and as livability was our main point we surely were delighted with the thought that we had found another test for promoting the main point in our program. As this proved to be a fact, we then applied the tests to all our flock and have now over five years' work with the "strength of germ tests."

First, there must be health and careful handling of eggs while saving for the tests. Our egg cellar is always at 50 degrees all the year.

You are told that the old egg will not hatch good; the germ will die; the egg will rot in the incubator, if it does hatch the chick will be weak. All those statements are true when applied to the non-progeny-tested hen with the "strength of germ test" running through several generations.

### Carrying Out the Test

We save our eggs for these tests many days, with the final test of saving for 25 days. Each egg is marked with the dam's number and the date of lay, so the check on the eggs will be accurate.

Our first tests gave us many disappointments and of course cost us considerable as we would have to set three times the number of eggs to obtain the correct amount of chicks for our orders.

The eggs hatched unevenly, taking over two days to complete the hatch in the hatcher. Now with several years tests, the eggs hatch just as soon as the ones that are laid in the seven day period. We now ship eggs, with from 10 to 18 eggs from the same hen, to customers that will return the hatchability data to us. This way we have proof that our eggs will hatch after going thousands of miles and being well over 20 days old when set.

We made two shipments to a customer last year with a month between shipments and all the eggs were over 14 days old when set, some of them 22 days old in each shipment. Those eggs hatched over 70 per cent of all eggs shipped and the fertility was 97.1. They traveled over 2400 miles by train and express. Another customer was in the flood zone near Los Angeles and the eggs were some 12 days old when set. The power was off 16 hours. He had a hatch of 82 per cent of all eggs set. Eggs from other sources were a failure, as the germs died.

### The Big Point of the Test

The hens that have good "strength of germ tests" will beget progeny that will have the best livability. We never save a male whose dam has not passed this test over 90 per cent of all eggs set, and whose test was made on the 24 day period at least once with almost every setting of at least 8 to 10 eggs.

With a mating of a "good strength of germ," both male and female will have fertility that always hits near the 100 mark and this will be accomplished with the one mating while in most other points the mating will be somewhat doubtful and may take several years to accomplish the desired results. Therefore the importance of this test shows up to the best of advantages as a sure test for correction of the hatchability fault other than feeds, management, etc. We can count on this test for the livability point without the proof of several years testing of the progeny.

## *Western Cooperative Turkey Markets Lead*

Seventy-five per cent of all turkeys marketed cooperatively in the United States are grown in 11 States west of the Missouri River, and the combined value of turkeys and chickens sold in this area accounts for 37 per cent of all poultry marketed through producers' cooperative associations. These facts are revealed by a recent door-to-door census of all agricultural cooperative bodies in the country which was made by the 12 banks for cooperatives under the Farm Credit Administration, working with about 30 State colleges.

This survey of farmers' cooperatives shows that the increasing preeminence of the West in the cooperative turkey-marketing field embraces every State west of the Dakotas and Nebraska with the exception of New Mexico and Washington. Colorado leads all States in the Union with its annual volume of turkeys moving through cooperative channels.

Altogether, 52 turkey associations and three egg cooperatives operating in these Western States represent the cooperative force that has put the territory in the lead. The growth of cooperative turkey marketing, especially, has been an outstanding feature of the poultry business throughout the United States, the survey indicates. It is estimated that in 1936, the year in which the survey is keyed, from 15 to 20 per cent of all turkeys went to market through cooperatives; as indicated, three-fourths of this volume represented birds grown by members of cooperatives and largely shipped through a cooperative sales agency in Salt Lake City.

Authorities on the Farm Credit Administration's research staff handling cooperative problems point out that the recent rapid growth of cooperative turkey marketing in the 11 Western States has been due in large measure to the general practice of paying the grower on a quality basis, coupled with improvement of the pack of dressed poultry shipped to market. By careful grading and dressing methods these associations shipping through the regional sales agency have developed an unexcelled pack.

The birds are sold under Federal grade and with a brand name which has won for itself recognition of dependable quality.

—From News for Farmer Cooperatives, January, 1939. Published by the Farm Credit Administration, Washington, D.C.

# Alabama Furnishes a New Idea in Cooperative Breeding Projects

By Donald L. Robertson
Alabama Polytechnic Institute

*Condensed from Poultry Tribune*

A NEW and different poultry breeding project, believed to be the first of its kind ever attempted in the United States, may lead Alabama and the entire nation into egg production that will be unequaled.

On October 1, 24 of the leading poultrymen of Alabama sent to the Alabama Polytechnic Institute, at Auburn, 52 of their best pullets to begin a record of performance test that is destined to put Alabama on the map, as far as high egg producing birds are concerned. If this is not accomplished, it will not be the fault of the diligent work, promotion, thoughts and conviction of John E. Ivey, poultryman, Alabama Extension Service, and R. B. Jones, chief, poultry division, Alabama State Department of Agriculture and Industries.

### Based on Genetic Factors

The Auburn R.O.P. project, as it is known, is a cooperative breeding program conducted jointly by the Alabama Poultry Breeders, Inc., the Alabama State Department of Agriculture and Industries, Alabama Extension Service, and the U. S. Department of Agriculture. The project is based on the genetic fact that high egg production is transmitted from hen to son and son to daughter. In other words, high egg production will be built around the son since, genetically, the high producing hen does not transmit her high egg laying ability to her daughters.

The 24 breeder members of the Alabama Poultry Breeders, Inc., have sent their best pullets and these birds will be trapnested for a 12-month period. All birds making a minimum R.O.P. record during the year will be retained at Auburn and mated to male birds from high producing females.

A year from October 1, the official opening date of the project, these 24 cooperating poultrymen will send 26 additional pullets to qualify as breeders for the next and succeeding years. The individual hens retained at the poultry plant at Auburn for the second and later years will continue to be trapnested. The eggs will be individually marked and incubated. On the eighteenth day of incubation all of the eggs from an individual hen will be put in a wire pedigree basket. As the chicks come from the incubator, each will be individually wing-banded and an official record made of the ancestry.

These chicks will be sexed. All of the pullets will be sent to the owner for progeny testing. The males will be distributed to the various hatcheries of Alabama which are participating in the National Poultry Improvement Plan for the production of U. S. Certified chicks. U. S. Certified chicks are those that come from individual hens that have been approved

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(Poultry Tribune, February, 1939)

by official state poultry inspectors and mated to a male bird coming from a hen that has produced 200 eggs or more in a single year.

According to Ivey, the 24 cooperating poultrymen have on their farms 28,606 hens used for breeding purposes, a total hatching capacity of 457,970 eggs, and during 1938 hatched and sold to Alabama poultrymen 1,075,200 chicks.

In addition, 78 per cent of the present hatchery capacity of the state is participating in the National Poultry Improvement Plan, of which the Auburn project is an integral part.

## *Early Eggs Are Clean Eggs*

It's the little things that count around a poultry farm. For instance, I have been in the habit of gathering eggs twice daily, except when the temperature has been excessively high or low, in which case they may have been picked up three or four times daily. Egg collecting at noon and at four or five in the afternoon has been a part of my ritual of life for years. It has been done so automatically that neighbors might have told the time of day by seeing me go in and out with the egg pails.

Now, as often happens at this time of year, when there is much dampness in the air and the laying houses are getting pretty mussy and the midwinter litter change is delayed by the weather or some other reason, there have been many complaints in the egg packing department about the dirtiness of the eggs. As everybody knows, when dirty eggs come to the packing table it takes twice the time that it should to get them packed for market. And there is, perhaps, no more tedious and annoying job than cleaning dirty eggs.

Well, it happened the other day that I decided to pick up eggs between 9:30 and 10 a. m. The result was a surprise in two ways. For one thing the difference in the cleanliness of the eggs was surprising and packing time was cut in half and made appreciably more easy and pleasant. The other surprise was the proportion of eggs laid by ten o'clock. In every pen the pick-up showed at least fifty per cent of the day's total and in some cases it ran as high as sixty per cent.

Of course, lights go on at this time of year between four and four-thirty, so that ten o'clock represents a good slice of the hen's laying day. Whether this discovery, which is so simple and obvious that it is hard to miss, will bring about a revised egg-collecting schedule on this plant I hate to prophesy — so hard are established habits to change. But I am convinced that earlier and more frequent egg collections would do much to eliminate the tediousness and drudgery of egg cleaning in the packing room.

—Ted Reeman in New Jersey Farm and Garden, January, 1939.

ABOARD the Imperial Airways' flying boat Cavalier, lost in mid-Atlantic on January 21, were 300 baby chicks, ordered by a Bermuda concern. "They kept chirping to the very end," said David Williams, senior steward.

# Streamlining Poultry Products

By A. O. Braeger

*Condensed from American Poultry Journal*

QUICK-FROZEN poultry, attractively wrapped in Cellophane, has given housewives and other buyers a chance to get poultry that is ready to cook. This quick-freezing process is a comparatively new way of preparing poultry for market.

### How the Birds Are Handled

The way that poultry is handled in preparation for quick-freezing is somewhat the same in all packing plants. After the birds are selected from the farm, they are, in most cases, put in feeding stations and are fed rations high in milk. When the birds reach the desired finish, they are killed and put in cooling rooms where the body heat is removed. Here preliminary grading is carried on and only well-formed, clean, well-meated birds are selected. Conveyors carry the birds to a picking room where the pin feathers are skillfully removed by workers. Still hanging on conveyors, the birds pass through a singeing machine where all hair is removed. The skin is now clean and smooth.

In the next step, the heads and feet are removed. The carcasses are then opened, and the organs removed so that they may be inspected. Every bird is carefully inspected by a government inspector. All approved birds are then completely drawn. Lungs, crop, windpipe, and all other inedible parts are removed. The giblets are carefully trimmed and thoroughly washed; the washing being done under pressure.

Once again the birds are hung on a conveyor and are taken to the wrapping table. While they are being conveyed, the water drains off. When the birds reach the wrapping table, they are carefully dried, and the giblets, including the neck, are wrapped in parchment paper and placed inside each bird. The hock joints are wrapped in parchment and tied to the tail, the neck skin is placed in position and the bird is placed on the scale. The net weight in pounds and ounces is marked plainly on the band that goes around the breast. This makes it easy for the buyer, when the birds are on display in butcher shops, to see how much each one weighs.

### Cellophane Wrappings

After the weighing, the birds are hand wrapped in Cellophane. This transparent wrapping insures sanitary handling. Now the birds are graded a second time according to size and weight. In most cases, the variation in weight per bird in each box is only a few ounces. Six birds are packed to the box and each are matched for kind, shape, color, and weight.

### Frozen Fresh

The last step in the process is the actual freezing of the birds in a temperature of 18 degrees below zero. These birds then can be purchased by the housewife ready for the oven. No cleaning is necessary. A dressed and drawn bird, hard frozen quickly, will not lose its delicious flavor and freshness. If a bird were not frozen immediately after being drawn, some of the freshness and flavor would be

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(American Poultry Journal, February, 1939)

lost, according to experts. It is now generally known and recognized that quick-freezing preserves the physical condition as well as the flavor, appearance and general character of many food products better than do the older slow-freezing methods.

Every shop that is handling quick-frozen poultry can arrange an attractive show case. The neat Cellophane wrappers, in addition to insuring sanitary handling, give the birds a pleasing appearance that helps to sell them. There is no question that any product attractively packaged or wrapped has greater sales appeal than an unwrapped one. Busy shoppers can, at a glance, pick out the size and kind of a bird they want, and, because of the transparent wrapper, know that it is clean and ready to put in the oven.

### Size of Chicken

One question that has been asked by housewives concerning ready to cook poultry is how the weight of a dressed bird compares with a drawn, ready to cook, bird. A simple rule to remember, and one that will answer the above question, is that a drawn bird is equivalent to a dressed bird of about one-third more weight. In other words, a 4 lb. roasting chicken dressed will weigh about 3 lbs. with head and feet removed, full drawn, ready for the oven. Below are a few examples of average comparative weights of birds in various classes:

| | Head and feet on, not drawn | Ready to cook |
|---|---|---|
| Broiling chicken | 1 lb. -14 ozs. | 1 lb. - 6 ozs. |
| Frying chicken | 3 lbs. | 2 lbs.- 3 ozs. |
| Roasting chicken | 5 lbs.- 4 ozs. | 3 lbs.-15 ozs. |
| Stewing hen | 5 lbs.- 3 ozs. | 4 lbs. |

### Drawn Turkeys and Ducks

Drawn turkeys are becoming increasingly popular. The method of handling turkeys is very similar to that of chickens, except for packaging and the removal of leg tendons. Each turkey is placed in an individual package, and because of their larger size, turkeys may be processed at a somewhat lower cost per pound. Drawing shrinkage is very much lower, and it looks as though drawn turkeys will largely replace undrawn ones in the near future. Several years ago, quick-freezing of turkeys was tried for the first time, and the venture was a success. In contrast to chickens, turkeys are usually packaged in individual boxes, and this practice has found favor both with the retailer and the consumer.

Long Island Ducklings also have been put on the market ready to cook. Each duck is wrapped in Cellophane and 6 ducks are packed in one box.

Contrary to the general belief, quick frozen poultry is being marketed in stores and shops that are not equipped with low temperature freezing cabinets. Experiments have shown that full-drawn poultry dressed and packed properly will keep perfectly for a week when delivered to stores where temperatures around 40 degrees Fahrenheit are maintained. Most of the retail stores are equipped with refrigerator cases where this temperature can be maintained at all times. However, some of the stores and shops are equipped with cabinets that permit lower temperatures, and if this is possible, the lower temperatures should be maintained.

WHEN a rattlesnake intruded upon the privacy of a turkey hen sitting on eggs on the farm of Jack Gucciona, Pueblo, Colo., the hen killed the snake by pecking at its head.

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*Suggestions to Help Increase Consumer Acceptance of . . .*

# Hard-Frozen, Full-Drawn Poultry

*Reprinted from the U. S. Egg and Poultry Magazine*

RECENTLY interest has increased greatly in the merchandising of full-drawn poultry. This poultry is usually prepared at a poultry packing plant in the country where the poultry is killed and plucked. The carcasses are full drawn, the head and feet removed, and the giblets cleaned, wrapped in paper and placed inside the carcasses. This work is done under sanitary conditions and with a view to making the finished product as clean and sanitary as possible. After the drawing is completed, the carcasses are usually wrapped individually in transparent wrapper, then packed six to a box and frozen quickly as soon as the packing operation is completed. The net weight of each drawn carcass is marked in a plain and conspicuous manner on the wrapper.

When this full-drawn, ready-to-cook poultry is offered for sale to housewives in retail stores, it has been found that there is some resistance to acceptance where the poultry is sold at a price per pound because of the apparently considerable increased cost as expressed in price per pound. In the drawing operation and the removal of head and feet, there is a shrinkage in weight of 25 per cent to 30 per cent from the dressed weight undrawn. When the drawn poultry is sold by the pound, therefore, it becomes necessary to mark up the price per pound considerably.

It is believed that once housewives thoroughly recognize the saving in waste in the purchase of the full-drawn poultry, the resistance to this increased price per pound would become much less or disappear. However, the resistance does exist at this time.

One means of securing acceptance of the drawn poultry carcasses which has proven successful in some markets is to advertise and sell poultry of a particular class, as broilers, fryers, roasters, or fowl, which are packed to a reasonable uniformity in weight, say, with a variation of individual carcasses not exceeding three or four ounces, at a stated price per bird. This practice enables the purchaser to compare more readily the cost of the bird in the drawn state to a similar bird in an undrawn state. The purchaser also is able to ascertain the exact weight of the carcass offered by means of the "net weight" statement carried on the carcass.

Introduction and wide acceptance of drawn poultry at retail has, however, been made more difficult in some states and cities because of existing laws and regulations which require that the carcasses must be advertised and sold at a price per pound and may not be advertised and sold at a price per piece or per carcass.

It is the opinion of this committee that the merchandising of full-drawn, ready-to-cook poultry in the form of individually wrapped carcasses has many advantages, among which may be mentioned the more attractive appearance of the poultry, the more

Report of the Advisory Committee of the Institute of American Poultry Industries, 110 N. Franklin St., Chicago, Ill. (The U. S. Egg and Poultry Magazine, February, 1939)

sanitary conditions under which it is drawn and the fact that the wrapped poultry is not handled after its preparation. The committee feels that it is desirable to promote the sale of such poultry as a forward step in the industry. It suggests that sympathetic consideration should be given by enforcement agencies in the states to permitting the poultry to be sold and advertised on the basis of a price per carcass instead of a price per pound, provided poultry of a class so advertised and sold will be packed to a reasonable uniformity and provided further that the net weight of each carcass is plainly and conspicuously marked on the wrapper of each carcass.

It does not seem to the committee that sale of the poultry in this manner would be in any way misleading to the purchaser and that this more sanitary and desirable way of handling should be encouraged. The committee suggests, therefore, that the enforcement officers in each state give this matter consideration and that every effort be made to find a way in which such sale may be permitted.

## *Poultry in Movies*

A motion picture "casting" agency, exclusively for chickens, has been opened in Hollywood by a young poultryman who felt that, because more chickens are used in pictures than any other type of non-human being, they were deserving of the formality of an agent.

There are many chickens used in making movies: barnyard scenes; rural scenes; poultry show scenes, and many others. Heretofore, there was no system in procuring the poultry. The studio needing the feathered "actors" would let the fact be known, and would be swamped with letters from people in which they praised their chickens' thespian talents. Although each owner knew that his birds would make the best performers, the studio people had a hard time deciding just whose to use, inasmuch as the chickens all looked alike to the casting director.

One may wonder why the studios do not just purchase what chickens they require from a dealer. The answer is that they would rather rent them. They found that it was much easier to have the owner bring his chickens to the studio in the morning and take them home again at night. As they paid more than a chicken was worth just to use him one day, it is easily understood why so many people were anxious to sell their services.

It was a case of first come, first served, and disappointment for others, when the old system was in vogue. Now it is different. The studios that want chickens merely call the "Chicken Agent" and tell him of their requirements. The agent, who has a long list of poultry owners to choose from, calls the one nearest to that certain studio, tells him how many hens and roosters are wanted and what time to report for work with his "actors." As two dollars is paid for each chicken and ten dollars is paid to the owner — who must stay with them all day—the amount paid at the end of the day's "shooting" is very good. Of the total amount, the enterprising agent gets 10 per cent. This is, incidentally, the same fee paid by real actors to their agents.

—John T. Lynch in American Poultry Journal, February, 1939.

# POULTRY RESEARCH

## New Gapeworm Treatment

During the past year, three Bureau of Animal Industry scientists—Everett E. Wehr, Paul D. Harwood and Jacob M. Schaffer—found that gapeworm-infested chicks treated by inhaling barium antimonyl tartrate dust were able to dislodge the parasites.

The barium antimonyl tartrate, which is not yet available commercially, is made by combining tartar emetic and barium chloride. The Bureau has applied for a patent which will give the public free use of the product.

In laboratory tests, the Bureau scientists infected two-week-old chicks with eggs and larvae of the gapeworm. The birds were kept for another two weeks under conditions preventing other parasitic infection. By this time a large number of the chicks were coughing or gaping as the gapeworms attached themselves to the trachea and cut down the passage of air.

Three to five of the infected chicks were then placed in a large glass jar. A small amount of the dust was placed on their heads and the remainder sprinkled into the jar which was then covered with a cloth. The dust was agitated by air pressure so that the chicks would inhale it. Ten minutes in the jar was sufficient to kill the parasites. A few hours after treatment, the infected chicks ceased coughing and gaping.

Post-mortem examination of the treated chicks' throats showed that the barium antimonyl tartrate dust was more than 98 per cent efficient in killing the parasites. Other chemical dusts were tried, but none was so effective.

Since the original tests were run, the Bureau scientists have been able to treat from 50 to 55 chicks at a time by placing them in a large galvanized box—a little more than two feet square and 18 inches high—and introducing the dust with a blow gun.

—News Release, U. S. Department of Agriculture, January 20, 1939.

## Cleaning With Lye Does Not Harm Eggs

Dirty eggs cleaned with a solution of concentrated lye, 2 level teaspoonfuls to one gallon of water for half a case of eggs, kept equally as well in cold storage as clean, un-washed eggs. In the introduction to the Missouri Research Bulletin 277, which covers these investigations, Dr. S. M. Funk observes that records on more than 66,000 eggs produced on the University Farm, show 7.3 per cent were dirty and 6.9 per cent were slightly dirty. Even under the best program of flock management some eggs become soiled.

—Carl H. Schroeder in Everybodys Poultry Magazine for February, 1939.

## Confinement and Egg Quality

Market quality of eggs was studied by Alp, Ashby and Card on 109 Illinois farms. This survey, published in Illinois Bulletin 441, concludes that the best quality eggs came from confined or semi-confined flocks and from farms where cooling was done promptly after eggs were gathered. Moisture in the place where eggs were stored helped to maintain quality. Provided reasonable care is given the eggs, the hot summer weather in Illinois is no serious handicap to the production of quality eggs.

—Carl H. Schroeder in Everybodys Poultry Magazine for February, 1939.

## Preventive Management Reduces Pullet Losses

Preventive management against high pullet death rate has been under study at the Ohio (Wooster) Experiment Station for several years. Preventive procedures consist particularly of the isolation of chicks and growing pullets from older disease-carrying birds or the disposal of all chickens (so-called "depopulation") 4 to 6 weeks before bringing day-old chicks to the place and also the use of breeders 2 years old or older.

In Bulletin 592 of the Ohio Experiment Station, Kennard and Chamberlin express the opinion that "until more definite information becomes available, such preventive management, uncertain as it may be, undoubtedly offers the best promise for near future relief (from heavy pullet mortality)." This view is in agreement with observations made in Germany, where similar preventive measures have been used with favorable results for a number of years. At least a partial explanation of whatever measure of success has been scored by this system is due to the fact that the younger the chicks the more susceptible they appear to be to the ailments responsible for heavy first-year mortality, and conversely, the older the chicks, the more resistant they seem to be. This age factor of resistance or susceptibility seems to operate to a noticeable degree until the birds are about 16 weeks of age.

In 11 tests at the Ohio Station, "preventive management" reduced the death rate from 59 to 28 per cent and increased production from 147 to 182 eggs in comparison with similar lots which were not given the benefit of preventive management.

Chicks raised on far-away branch farms of the Experiment Station performed more satisfactorily as regards pullet livability and egg production than chicks raised on an isolated range near the Station's poultry plant, where such management precautions were taken as would generally be considered practical under commercial conditions. Repeated tests will be necessary to determine the merits of this modified preventive procedure.

—Carl H. Schroeder in Everybodys Poultry Magazine for February, 1939.

## Perosis and Rickets Not Closely Related

Poultry tests at Oklahoma Station show that perosis is not closely related to rickets. Careful examination, X-ray studies of bones, plus 100 analyses of blood and bones, demonstrate that factors responsible for the cause and cure of rickets did not affect perosis, according to V. G. Heller, agricultural chemist, and Robert Penquite, poultry specialist at Oklahoma A. & M. College.

It was believed at one time that perosis was closely related to rickets, but after many tests and examinations these authorities stated that defective legs and bones could not be treated as rachitic. "Excessive minerals," Penquite said, "if of any importance at all, only aggravate the condition."

Different rations over the entire period were fed certain groups of chickens, with all results studied and

recorded. Many modifications and supplements of new rations have been added and thousands of chickens observed.

"It was found," Penquite observed, "that by replacing half of the corn with whole ground wheat or rice bran in one ration, the occurrence of perosis was lowered."

It has been observed and substantiated from time to time that a water extract of rice bran would prevent the occurrence of the condition. Some relief was noted with wheat embryo extract, but only slight benefit resulted from wheat bran and alfalfa leaf meal extracts.

"From the examination of accumulated data," the authorities stated, "it becomes evident that the basal ration could be depended upon to produce perosis in 76 to 100 per cent of the observed battery brooded chicks, and that a water soluble, heat stable extract of rice bran, evidently not in the nature of a vitamin, was effective in preventing the occurrence.

—Feedstuffs, Jan. 28, 1939.

## Manganese Deficiency Lowers Production and Hatchability

A deficiency of manganese in the diet of breeding hens resulted in low egg production and high mortality of embryos in work reported (Poultry Science, Vol. 18, No. 1) by Willis D. Gallup and L. C. Norris, Cornell University.

Fertility of the eggs, as determined by candling after seven days of incubation, was only slightly decreased in the eggs of low manganese content, but the mortality of the embryos was high during the final stages of hatchability.

Only 41.3 and 42.8 per cent of the fertile eggs with a low manganese content hatched, while 85.8 and 86.3 per cent of the fertile eggs with a high manganese content hatched.

"Chicks hatched from eggs of low manganese content and having low initial reserves were no more susceptible to perosis than were those hatched from eggs of high manganese content. The prevention of perosis during early growth of chicks appeared to be more dependent upon manganese intake than upon total manganese reserves at hatching time."

## Effect of Position of Embryo on Hatchability

In an attempt to determine the relation between certain abnormal positions of the embryo and the failure of eggs to hatch, over 5,000 unhatched eggs were examined at the California Agricultural Experiment Station. Observations were made not only on chicken eggs, but also on eggs of turkeys, pheasants and partridges. No evidence was found of species differences in the frequency of various positions.

Embryos with head to the left, or with head between the thighs, whether in the large or the small end of the egg, rarely pipped the shell and presumably very seldom hatch.

When the head was to the right, a relatively high percentage of the embryos pipped the shell, and presumably may hatch, whether the head is in the large or small end of the egg, or whether the beak is over or under the wing or toward or away from the air cell.

The incidence of embryos with head to the left varies among different strains and among hens within a strain, suggesting that there are hereditary factors governing this particular malposition.

Embryos with the head in the small end of the egg, even when the head is turned to the right, are handicapped by their position and are less likely to hatch than are those with the head in the large end of the egg.

—L. E. Card in Poultry Tribune for February, 1939.

## Dried Tomato Pomace as Poultry Feedstuff

Dried tomato pomace, a by-product resulting from the production of tomato juice and other tomato products, was tested by W. B. Esselen, Jr., and J. C. Fellers, Massachusetts Agricultural Experiment Station, who reported (Poultry Science, Vol. 18, No. 1) that it appeared to be a good source of vitamin B1 and a fair source of vitamins A and B2 (G).

Previous work by other experimenters has shown that dried tomato pomace is a satisfactory protein concentrate for livestock feeding, and it may be fed to chickens at a 10 to 15 per cent level. Higher levels of feeding impart bitterness to the ration and result in unpalatability.

## Stearin for Fattening Poultry

Stearin, the pure fat extracted from cod liver oil in the refining process, is reported (Poultry World, London, Jan. 20, 1939) as being satisfactory in the fattening of market poultry in tests conducted by the British Cod Liver Oil Producers, Ltd., Hull, England.

"The fat is fed to the birds undergoing test in its absolute raw state instead of being mixed in the mash, as happens with mutton and other fats. Its palatability is demonstrated by the fact that the birds consume it voraciously."

## Protein Levels for Chicks

To get more information on this question, Michigan Station grew two lots of pullets from eight to 24 weeks of age in batteries. One lot received a mash consisting of normal cereal constituent and 8 per cent protein supplement, consisting of soybean oil meal, meat scrap and dried milk. The other lot received 18 per cent protein supplement in addition to the same cereal. Grain consisting of corn and wheat was kept before the birds at all times.

The birds showed considerable ability to balance their own intake of crude protein with the other feed by regulating the amount and consuming more or less grain, depending on whether it was a high or low protein mash. No noticeably earlier maturity, as measured by date of first egg, was obtained with the high protein mash under this method of management. The range of weight was wider on the high protein mash. The cost of raising the pullets was approximately the same.

A substitution of oats for wheat by-products has been attempted during the past year. Fourteen lots of chicks have been grown to eight weeks of age on varying amounts of oats. Indications are that increased amounts of oats can be satisfactorily used after two or three weeks of age.

—Feedstuffs, Jan. 28, 1939.

## Effects of Different Levels of Alfalfa Leaf Meal

The effect of different mash levels of alfalfa meal in enhancing hatchability is shown in results of feeding trials at the Rhode Island Experiment Station.

In these trials, five groups of birds were fed rations in which the mash formula contained 0, 5, 10, 15 and 20 per cent alfalfa leaf meal. There was no appreciable difference in the level of hatchability obtained in levels up to and including 15 per cent alfalfa leaf meal. The 20 per cent group, however, had a hatchability percentage considerably lower than that obtained in any of the other four groups. Similarly, the 20 per cent level resulted in the poorest rate of egg production and the poorest feed conversion factor. It produced the lowest rate of adult mortality, however.

No great difference was evident between the 0, 5, 10 and 15 per cent levels in egg production, hatchability and average feed consumption; although, on the whole, the pen receiving no alfalfa leaf meal showed a slightly better feed conversion factor than the other groups. Variation in yolk color was measured by the Munsell spinning disk indicator, and the results indicated a close association with the amount of alfalfa leaf meal contained in the mash formula. The most striking relationships between ration and yolk color showed a decrease in the extensiveness of yellow and black, and an increase in the amount of red making up yolk color, as the alfalfa leaf meal levels were increased.

—Feedstuffs, Jan. 28, 1939.

## Raising Turkeys on Grass Ranges Reduces Costs

An experiment has recently been completed at Kansas State College comparing turkeys reared in an oat and Sudan grass lot with those reared in a bare lot of equal size. At 28 weeks of age, those in the grass lot averaged about 2 lbs. per bird more, consuming 16 per cent less feed. The cost to produce a pound of turkey on the grass range was 34 per cent less than the cost on the no-grass range, states L. F. Payne, head of the poultry husbandry department.

—Feedstuffs, Dec. 24, 1938.

## Crossbreds for Broilers

Crossbreeding for broiler production is the title of Arkansas Bulletin No. 354 by Horlacher and Smith. Pure breeds and crosses studied were: Rhode Island Reds; White Wyandottes; W.W. male X R.I.R. female; White Leghorns; Dark Cornish male X S.C.W.L. female; Barred Rocks; White Rocks; W.R. male X B.R. female; W.R. male X W.W. female; W.W. male X W.R. female. Only the W.W. male X R.I.R. female cross demonstrated improvement appearing to be of experimental significance.

Rate of growth was definitely more rapid and less feed was required to produce one pound of gain. These particular crossbreds were white with a few black feathers and some black flecks on the white feathers.

Unfortunately, the practical value of such investigations is limited by the fact that with different strains or different individuals the results might be different. No consistent difference in fertility or hatchability was observed among both the pure breeds and the crosses. "Barebacks" were virtually limited to the Wyandottes and Wyandotte crosses.

Since the occurrence of "barebacks" was markedly greater in one of the two hatches constituting the population of these tests, retarded feather growth in this case appeared to have both a genetic and an environmental basis.

—Carl H. Schroeder in Everybodys Poultry Magazine for February, 1939.

# A Review of Efforts to Increase Egg Consumption During 1938

By H. E. Shackelton
Chairman, Consumer Education Committee
National Poultry Producers Federation

*Condensed from a Committee Report*

WITH fine cooperation from other branches of the industry, and with full and sympathetic support of the poultry press, trade papers, state colleges, the poultry section of the A.A.A., the Institute of American Poultry Industries, and others, the Consumer Education Committee found the Independent Food Distributors Council with 150,000 stores, National Associations of Chain Drug Stores, National Association of Food Chains with 50,000 stores, willing to cooperate in a series of Producer-Consumer Drives spread over four weeks beginning March 14th, April 4th and 25th and May 16th. These drives gave a real impetus to increased egg consumption.

As a requisite to such a series of drives, was the formation of state stabilization committees which now number 33 and include all of the important producing and consuming states. Each committee consisted of ten or more bonafide producers and provided the contact point between the local areas, the national committee, and the associations of retail stores. The good accomplished by some of these state committees cannot be measured.

### Related Foods

With almost no cost to the Committee, merchandisers of certain related items like flour and macaroni, gave eggs a much appreciated push. General Mills was one of the first. In their radio programs, encouragement was given to the use of eggs. More cakes baked meant more eggs used. Posters distributed by 500 salesmen calling on the baker trade carried a two-inch caption on eggs. The Macaroni Institute put out an excellent Lenten poster in color, showing slices of hard cooked eggs. These were used all over the Nation.

### Types of Egg Promotion

One state committee chairman arranged for newspaper advertising and paid for it out of his own pocket. The same chairman procured the assistance of the chamber of commerce, newspaper publishers and the state university. He printed and mailed 2,500 copies of a pamphlet entitled, "Let's Do Something About It."

Another state chairman did such a good job that he was selected to head up the New England Fresh Egg Institute. Under his guidance, the Institute has developed the following activities to increase the use, sale and consumption of eggs:

1. Broadcasts on eggs once each week over the Colonial Network.
2. Preparation of egg material for food broadcasters and commentators.
3. Furnishing material to food demonstrators of food and drug chains for egg booklets and broadcasts over the Yankee Network.
4. Distribution of egg booklets.
5. Cooperation with Food Chains on window displays.
6. Meetings with soda fountain managers.

Many other state committees arranged for broadcasts and for use of news released from the national committee.

Some state committees sponsored essay, cake baking and poster contests.

One food chain ran a recipe contest.

One poultry publication held a contest for advertising slogans.

The Institute of American Poultry Industries, through Mrs. Kathryn Bele Niles, prepared posters, streamers, window strips and egg bulletins.

Leaders of women's clubs attended meetings of the Committees and cooperated in broadcasts, mailing bulletins and the like.

One state committee, through the Governor, arranged to have a week designated as State Egg Week, and all state agencies were used to make it a success.

In another state, arrangements were made for meetings attended by superintendents of state schools, county agents, heads of five consumer organizations, nutrition specialists, representatives from food and drug chains and independent groups, and egg distributors.

Some states prepared a series of carton inserts; one state alone furnishing a million inserts.

The drug chains arranged a series of meetings for soda fountain managers to discuss egg quality and the use of eggs at soda fountains. Members or representatives of the national committee and others participated in the meetings.

The Independent Food Distributors Council issued frequent instructions to its members to feature eggs.

The National Association of Food Chains issued special egg bulletins to members for many weeks during the Fall of 1937 and the Spring of 1938.

The poultry and trade press gave of their space freely, covering various aspects of the Committee's work.

### Easter Egg Hunt Staged

In one state, a producers' cooperative association sponsored an Easter Egg Hunt and secured front page stories and pictures in the newspapers. In the same state, the leading paper ran a series of pictures on egg production in the rotogravure section.

One Easter egg dye manufacturer donated dye for coloring eggs for an Easter egg hunt.

The state chairman in another state prepared a booklet, "How to Use Eggs in Preparing Delicious Foods for Special Occasions." He also arranged for contacts with the public schools.

Another state committee, in close cooperation with a producers' organization, prepared news releases, furnished recipes for home economic editors, supplied menus for publication and for restaurants, and provided "Eat More Egg" posters for delivery trucks.

Presented at Annual Meeting of the National Poultry Producers Federation at Cleveland, Ohio, Feb. 2, 1939

PASSENGERS on steamship lines consume an enormous amount of poultry and eggs. As an example of the amount of provisions needed over Christmas, the chief steward of the S. S. Washington of the United States Lines, ordered 20,000 pounds of turkeys, ducklings and chickens and 50,000 fresh eggs.

# Are the Poultry Sands Shifting?

By G. S. Vickers
Field Manager, Ohio Poultry
Improvement Association

*Condensed from Poultry Supply Dealer*

POULTRY statistics for recent years reveal facts of more than passing interest to the hatchery and supply industry.

The most notable is the apparent tendency toward an increasing number of chickens in every section of the country except the West North Central States. This area includes Minnesota, Iowa, Missouri, the Dakotas, Nebraska and Kansas.

Right off the bat the drought is blamed.

A further study reveals that the greatest increases in production are occurring in the East and along the Atlantic Coast. It seems significant to me that the areas showing the greatest increases in poultry-raising activities are those close to large markets; those showing the smallest expansion are remote from markets.

### Lists Changes in Population

The table in this article reveals the changes which are taking place. It shows the number of chickens on farms April 1, 1930, according to the United States census, and the number on January 1, 1936.

(While the figures presented are not comparable as to actual numbers for the two years, and therefore increases revealed may not be as extensive as shown, it should be borne in mind that the amount of error will be constant for all sections.)

**Table of Chickens on Farms**
**(000 omitted)**

| Division | 4-1-30 | 1-1-36 | % chge. |
|---|---|---|---|
| New England | 6,882 | 8,358 | +21.4 |
| Mid. Atlantic | 31,497 | 41,223 | +38.9 |
| E. N. Central | 77,683 | 91,728 | +18.1 |
| W. N. Central | 118,261 | 115,109 | – 2.6 |
| S. Atlantic | 33,422 | 45,086 | +34.9 |
| E. S. Central | 28,617 | 36,077 | +26.1 |
| W. S. Central | 43,254 | 46,487 | + 7.5 |
| Mountain | 12,372 | 12,625 | + 2.0 |
| Pacific | 26,887 | 29,452 | + 9.5 |
| TOTAL | 378,875 | 426,145 | +12.5 |

Note that the greatest increases have taken place in the East and along the Atlantic Coast.

Those states showing the largest expansion are in the Middle Atlantic section which consists of New York, New Jersey and Pennsylvania, and in the South Atlantic area of Delaware, Maryland, the Virginias, the Carolinas, Georgia and Florida. The increases in these two sections were 38.9 and 34.9 per cent, respectively.

The sections showing upturns above average were New England, Mid-Atlantic, South Atlantic, East North Central and East South Central areas.

States in the West North Central, West South Central, Mountain and Pacific areas show less than the normal increases.

Thus it would seem that there definitely is a shift in poultry raising to sections nearest the markets.

Of course, the Mid-West still produces most of the eggs and poultry and will continue to do so for a long time, but the trend is for more to be produced by the East and less in the western portions.

The Baby Chick Company, 1230 Washington Blvd., Chicago, Ill.
(Poultry Supply Dealer, February 1939)

Sometimes I wonder if proximity to market alone explains the changes that are taking place. More attention has been and probably is being given to good producing and marketing methods in the East. The eastern boys are getting more for their eggs because they are getting a greater volume of better grade offerings on the market. Direct selling to the consumers in thickly settled areas also is a common practice, and it is no secret that the producer selling direct usually obtains more for his product.

Without doubt, these eastern producers are netting considerably more for their eggs than the producers in more remote areas.

### Farmers Careless About Poultry

In much of the territory where poultry population seems to be lagging (with the exception of the Pacific Coast) flocks are small. Farmers don't take pains to see that quality is kept high. When production is at its peak during the warm weather, majority of the eggs produced are of inferior quality. Losses are heavy, and market buyers assess penalties against most offerings. Even during cooler weather, quality does not always equal that of other sections. Thus the poultrymen in these areas do not obtain the most from their flock, a factor which discourages poultry-raising.

You will note that in the East North Central States there are areas where good marketing and producing methods are pursued and that producers in the areas are receiving prices equal to those paid to Eastern poultrymen. In fact, it is hard to tell much difference between eggs produced in these progressive sections of the East North Central States and those produced in the East.

A large portion of the eggs go East, but there are movements on foot in Ohio and some of the other East North Central States to develop large markets in near-by areas. Poultry production in these areas is on the upgrade.

### Packer Campaigns Meet Obstacles

Packers, in many instances, have tried to get producers to put out better eggs and have instituted programs of buying on a quality or grade basis. It's tough sledding. There are so many poor eggs at certain seasons that buyers of such offerings get all the business and the packer volume goes into a tailspin.

The poultry business in the Pacific Coast section apparently is not making the headway it once did. There was a time when Pacific Coast producers were the most progressive in the business. They were leaders in producing good eggs and in following the most advanced marketing methods. Their cooperatives were about the only places one could buy uniformly high quality eggs in large quantities. This has changed now; areas of lower producing and marketing costs have learned how to compete with the West Coast offerings. Now some areas in the West are expanding while others definitely are falling behind. Sonoma county, California, produced 4,315,279 chickens in 1930. Production in 1935 fell to 2,757,993. Los Angeles county also had a large decrease, while other counties in California and Washington have shown nice increases.

### Cites Changing Feed Status

It always has been an argument that the Mid-West has an advantage in feed prices. The differential in feed prices today does not amount to much. Not so long ago, a large commercial feed company was delivering feed into Pennsylvania and New York for a lower price than it could to Ohio. In fact, the feed for Eastern Ohio was being shipped from a Buffalo mill rather than from a mill in the Mid-West. This is rather unusual, of course.

But farmers and farmer organizations in the Mid-West continually have been seeking cheaper freight rates on feedstuffs. The poultry interests of the section may well raise the question as to whether these lower rates have not worked to their disadvantage. Perhaps they had better forget lower rates on feedstuffs for a time and concentrate on lower rates for poultry and eggs.

It is obvious that unless the poultry industry of the Mid-West can find better ways and means of maintaining egg quality the shift of producing areas toward the East will continue. It may be possible that the poultry industry of the Mid-West can find salvation in a swing toward the poultry meat business. However, production of poultry meat is largely a by-product of egg production.

## *Nature's Checks and Balances*

This past year has been the best for egg profits that many of us have ever seen and it is not likely that we will ever see another as good. Plentiful as grains are now, already the picture begins to change. Next season we are pretty sure of plenty, but don't bank too much on 1940. We'll get by, we always do, but the figures on fall-sown wheat show a tremendous cut this year and the dry weather in the southwest has cut conditions away down. If spring sowing keeps pace with the winter wheat in amount we are not likely to harvest as much wheat next fall as we will use in the following year. That isn't anything to worry about. We have plenty of surplus to carry us over, but eight years ago this winter they were howling just as badly about the tremendous surplus of grain and you all know what we have been through since then.

Looking up and down the years, we see that, after all, Nature does a pretty good job. Her checks and balances do get out of kilter once in a while, but we can hardly point to any man-made works that run any better on the average. The tides have been ebbing and flowing for longer than we will ever know and I surmise that they will keep right on doing it.

—Eben Wood, in New England Poultryman, Jan. 15, 1939.

MANY poultrymen have been caught raising flocks of stolen chickens, but thieving had assumed huge proportions on the farm of Howard Ridgeway, Odell Krump and Walter Lloyd, near Battle Creek, Michigan, before county officials caught up with the culprits. Ridgeway confessed stealing not only the chickens, but feed to feed them, lumber to build poultry houses, and whatever was needed to run a large-scale poultry farm.

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# Preparing Feathers for Market

*Reprinted from American Poultry Journal*

One of the by-products from the production of poultry, ducks and geese that is often lost sight of, that when properly handled, may bring in some revenue, is feathers. Feathers are worth anywhere from 2 to 55 cents a pound, depending on the way they are handled before they are sold from the farm. In order that readers might be informed of the correct way of caring for feathers that are to be sold and thus make the most possible out of them, Mr. L. R. Cohn of Vitkin, Lee Feather Company, 2455 Archer Ave., Chicago, dealers in feathers of all kinds, was consulted as to the best methods of handling feathers.

In the first place, it does not pay to attempt to sell feathers unless the quantity is large enough to make it worth while. Goose feathers and duck feathers are in greater demand by the buyers than chickens feathers, and in order to make the marketing of these feathers worth while, a person should have at least 18 or 20 geese or 20 to 25 ducks. Where there are several hundred or more chickens killed for market on a farm, the poultryman should find it worthwhile to give these feathers some care and sell them. It takes the feathers from 2 or 3 large geese or 4 or 5 ducks, depending on the size of the birds, to make 1 pound.

Speaking primarily of goose and duck feathers, Mr. Cohn stated that it is best to save the white body feathers separate from the others. The quill feathers are not wanted. Unless feathers are thoroughly dried out, they are likely to "burn", that is, the barbs are damaged so that the feather is very ragged looking and seems to lose its fluffiness. A good way to dry out feathers is to spread them out on the floor or loft of some building to a depth of several inches and turn them frequently, at least twice a day, to avoid this burning. Quills that do not bring top price should be kept entirely separate from body feathers. As a matter of fact, goose quills are worthless. After feathers are thoroughly dry, they should be packed loosely in wool or burlap sacks as, for example, burlap feed bags.

Briefly, the care and handling of feathers for sale may be summed up as follows:

1. Separate the feathers, keeping duck feathers separate from goose feathers, and if chicken feathers are sold, keep them separate from both duck and goose feathers.
2. Keep white feathers separate from colored feathers.
3. Keep body feathers separate from quills—feathers should contain the least amount of quills possible.
4. Feathers should be thoroughly dried out — the least amount of moisture in the feathers the better. This is because the drier the feathers, the less shrinkage there is by the time the dealer buys them.
5. Pack feathers loosely in burlap sacks or bags for shipping.

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(American Poultry Journal, February, 1939)

# Diary of a Poultryman

By P. S. White

Egg Farmer, Wayne County, Ohio

*Condensed from Everybodys Poultry Magazine*

**Feb. 1**—There is an electric lamp in the west end of the block house that has been giving trouble for the last few mornings. It seems that there is something loose in the socket. Guess the best thing to do is replace it. I have determined through bitter experience that it doesn't pay to tinker with defective electric fixtures or pipe fittings. New replacements are the cheapest even in the short run.

**Feb. 3** — C. L. Haley, agricultural teacher at Jeromesville, about 12 miles down the road, wants me to give a talk to a special adult poultry class on the 14th at 7:30 p.m. The subject is to be "Housing and Ventilation."

The housing part is all right, but I am in the dark about the ventilation. I never have understood ventilation. In fact, I have never talked to any one whom I thought did understand poultry house ventilation. I have talked to engineers who thought they understood it, but observation of their handicraft didn't prove it to me. In other words, the litter is going to get soggy at this time of the year and there is no and, if and but about the situation. It does and it is a fact.

**Feb. 5**—Floor litter gets damp from the top down; frozen droppings thaw from the bottom up. A change in the weather will often cause the litter to draw damp in short order. It will also cause the droppings to thaw sufficiently that the boards can be cleaned. This is what happened today.

And a rubber tired wheelbarrow is a product of scientific merit beyond a question of a doubt. The more I see of it, the more I think it is one of the best buys I ever made. A fairly accurate estimate of tonnage hauled today would be about 4 tons. This includes manure, patching the road with gravel, apple pomace for the cows and some bags of wheat.

**Feb. 8** — I went over to Verne's today and borrowed his models of poultry house equipment. It seems to me that it will be a good policy to take them down to Jeromesville next Monday. Equipment surely goes right along with housing.

One of the local dealers made me such a good price on an electric fence unit I simply couldn't let it get away from me. The orchard will need another fence this year if sheep are pastured in it. I have heard so much about this electric fence business that I am going to give it a practical test out. But I just don't think it will hardly work for chickens.

**Feb. 9**—Wm. Ball, the manager of the local food storage locker plant, is developing the idea of smoked chicken. At least it is a new idea around these parts. The method of procedure is simple. The bird is placed in a brine solution for 24 hours and then smoked for a day. He has smoked several and we are just waiting for a convenient time for all to give his handiwork a trial. The smoked carcass has the appearance and color of a cured ham and the taste is supposed to be somewhat akin to that of ham. It will be a queer sensation to eat something that looks like chicken, but doesn't taste like chicken.

**Feb. 10**—Had a clean-up today on a few running gears, the dead and dying so to speak. I don't like to see them sticking around, but it appears that they will crop out once in a while. If I burn all of my stock in the furnace, it is only a question of time until I will be wearing wooden diamonds.

Dead hens, though, do make a hot fire after they get started. A rather expensive fire, I would say, if the initial value of the bird was given any consideration.

**Feb. 11** — The first session of the Wayne County Poultry School was held last night in the Auction Building, C. M. Ferguson, poultry extension specialist, conducting. The subjects for discussion were breeding, bloodtesting, sexed chicks, broiler outlook. The sound moving picture, "The National Poultry Improvement Plan" was shown.

There were about 100 in attendance. After the meeting was over, several of us stuck around and settled all the troubles of poultrydom. They were settled last night, but this afternoon I woke up to the fact that I was two days behind with my egg packing. It is so easy to get behind with the work and apparently so hard to get caught up again.

The hook! The hook! My kingdom for a catching hook. At least that is what I thought today when I needed a hook badly and couldn't find one. I have always made it a policy to keep a catching hook in each house so I could put my hand on it in the dark, if necessary, but someone evidently used it and failed to replace it. And finally, when I had found the hook and was ready to catch the bird, I didn't need the hook at all. No, it was love's labor lost. I just picked her up by one leg and started the death march towards the furnace. The victim's pen mates had gotten in a nice piece of dirty work while my back was turned.

**Feb. 14**—Well, the old saying of "a friend indeed is a friend when in need," held true tonight. I was to have gone to Jeromesville to talk to the poultry class of Prof. Haley, but I am down with a cold. Yesterday was like a spring day and I guess I got a little too warm. Anyway, I have a cold and it has settled in my stomach. I will tell the world that the stomach is a bad place for a cold to settle.

"Kid" White phoned Verne Chamberlin and he substituted for me. Harold has kept the regular work caught up, but it pushed him to get it all done. The eggs are piling up; none have been packed today. If I don't feel any better tomorrow, there will be a smear of them to pack Wednesday.

**Feb. 15**—I still have it and bad too. Didn't sleep much last night, but was able to eat something today. That is more than I was able to do yesterday.

**Feb. 16**—I was a little late in getting the eggs to the Auction for I was packing all morning. I asked Florence —she always answers the Auction phone—to tell Ralph Sheppard that I would be late, but that I would be there just the same. This is typical of our work at present. We apparently are getting later with our work, but we eat supper just the same — after the work is done.

The lights are coming on at 4:45 a.m. as the days are getting longer.

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(Everybodys Poultry Magazine, February, 1939)

It just won't do to force the birds too hard at this time of the year. Heavy production, and we are feeding lots of whole corn in order to hold the body weight. If the birds go down in body weight—look out—an early molt is ahead.

**Feb. 17**—The second session of the poultry school was held tonight. "Fergie" talked this time on brooders, water fountains, feeders, nests and roosts. There was a display of commercial equipment by local dealers. Harold Edwards of the Wooster Feed Manufacturing Company had an egg cleaning machine on display. It worked.

**Feb. 18** — Back on the regular schedule again. All the egg packing has been brought down to date and they were delivered this morning on time. This afternoon, the weekly dropping board cleaning got under way as per usual. Not much done this week in the matter of extra projects, but we have held our own, which is an item well worth considering.

If egg prices would only hold their own, it would be even more worth while considering, but it doesn't seem to work that way. For high prices may come and high prices may go, but I go on forever in a bewildered state of mind. Bewildered is right; I think I know less every day. I should soon reach the point where I can start all over again.

**Feb. 19** — I brought a couple of smoked chickens home yesterday. Wm. Ball has been invited to give them a practical test out tomorrow, Sunday. We will also have corn on the cob and strawberry short cake from fresh berries. This quick freeze cold storage business is great.

"Kid" White has been dressing quite a few hens of late, and into storage they go. There is one nice thing about hens in cold storage, they do not eat.

At last, we have discovered a practical solution for the burlap covering from peat bales. They make dandy door mats for muddy weather. And, when they get too dirty, we just sock them in the furnace. There is nothing like utilizing all by-products.

**Feb. 21**—The family has well nigh gone hog wild over smoked chicken. It is great stuff, and there is no question about it. Smoking has a tendency to dry the meat a wee bit, but this is overcome by cooking longer and with plenty of broth. The chicken taste is practically eliminated and a peculiarly pleasing ham-like taste substituted. I believe that Donn and Nancy Jane could each eat a fair sized bird at one sitting. Fresh strawberry short cake and corn on the cob also taste awful good at this time of the year.

**Feb. 22** — R. E. Cray, Extension Poultryman, and a delegation were visitors late yesterday afternoon. They first visited the auction and the cold storage locker plant, as most of the members were interested in marketing. In fact, this delegation were thinking rather seriously of the advisability of establishing an Egg Auction at Zanesville, Ohio. The real purpose of their visit out here was to see how eggs were handled on the production end. They were especially interested in the egg room and the cooler.

The electric current went off at 4 a.m. today. I immediately phoned the power house, and the trouble shooting crew was out here in 30 minutes. It seems that the lightning struck the transformer last summer and cracked it. Recent rains shorted it with the result that it burned out, but by 6 o'clock, we had power again and everything was hunky-dory. It was a rather short day for the stock, but often times things happen over which I have no control.

**Feb. 24**—There is much running to and fro around this neck of the woods at present. R. E. Cray was in here with another delegation this afternoon and C. M. Ferguson, the other extension poultryman, holds the third session of the Wayne County Poultry School at the Auction building tonight. These egg farmers around about should get pepped up for the spring rush. "Fergie" will talk tonight on brooding, feeding and sanitation. Then there will be a panel or round table discussion on brooding by Dr. Kennard, Auction Director Earl Rice, Producer Leo Buchholz and Old Man White. Well, I have never seen four chicken men yet who couldn't put up a fair-sized argument. As a rule, two are all that is required.

**Feb. 25** — I cleaned the egg room today of all cracks, doubles and blood spot eggs. It seems to me that these three grades have accumulated rather fast the last few days. Cracked and double eggs are very seldom sold on the Auction as our back door trade usually takes them all. There were 10 dozen blood spots which, after all, was not a very large percentage when the total number produced is taken into consideration. If blood spot eggs can be held down to around 1 per cent, the loss from this source is not very great.

The panel discussion last night ran true to form. It was an argument from the start. Then when the meeting closed, the crowd hung around and re-hashed the whole thing.

**Feb. 28** — The bottom well nigh dropped out of the thermometer last night. It just got down low enough so that I drained the pipes in the barn. At 11:30 p.m., I figured that life was too short to take a chance, so I went out and drained them. Peace of mind can often be bought cheap; sometimes only a little labor is required.

Earl Wharton brought in two loads of sand for the brooder houses out on the range, but the load was too heavy in each case to get to the final destination. Guess we will have to use the rubber tired wheel barrow. From all indications, March is going to come in like a lion.

## *Conditioning the Breeding Cockerel*

Half the battle in obtaining maximum hatching results lies in conditioning the cockerel at the head of the breeding pen.

When the male is placed with the hens the bird should be one hundred per cent fit, because lack of condition means an excess of infertile eggs and weak germs.

To keep the cockerel continuously fit during the breeding season it is wise to see that the bird receives a good meal daily on its own. So many cockerels are poor feeders when running with their hens that it is wise occasionally to pen the male bird on its own. Then it will eat well and will prove the keener when returned to the hens.

It is not necessary for fertility to have the male always running with the hens. The birds can be out of the pen for several days in the week without any reduction in fertility.

—Poultry World, London, Jan. 6, 1939.

# Confinement Beat the Parasites

By Allen H. Bulkley
Schuyler County, New York

*Condensed from Everybodys Poultry Magazine*

IN the spring of 1926, we started over 4,000 choice baby chicks in colony brooder houses on an alfalfa range which had never been used for chickens. These chicks were from "certified" and pullorum-tested, old-hen breeders, and our mortality for the first 10 weeks did not exceed 5 per cent in any of our brooder houses.

### Duodenal Coccidiosis Attacks

Between the ages of 10 and 11 weeks a few cases of paralysis were noted, and on microscopic examination by Dr. Brunett, Poultry Pathologist of the Veterinary College of Cornell, duodenal coccidiosis was found. In those days little was known about duodenal coccidiosis, but we made every effort to secure all available literature on the subject, and experimented with many different remedies throughout the rest of the growing period and laying year with very poor success. The mortality was high, repeated autopsies with very few exceptions showed the same condition, "duodenal coccidiosis."

The financial loss was great and discouragement greater.

Owing to the disastrous results in 1926, we decided to move all brooder houses and equipment to an adjoining farm after thoroughly cleaning, scrubbing and disinfecting each house and all equipment used in the brooding of chicks. The caretaker of the chicks did no other work. No visitors were allowed on the range, and neither the caretaker nor the writer ever went into or near a brooder house without putting on rubbers that were used for that purpose only.

Nearly $80.00 was spent for disinfectant in cleaning the houses and throughout the brooding and rearing period.

We again brooded about 4,000 chicks, and history simply repeated itself. Duodenal coccidiosis again took command, and our losses throughout the rest of the growing period, and throughout the laying year, were collosal.

### Beat the Parasites, or Sink . . .

We were determined that a way could be found to control successfully the ravages of parasites, and were unwilling to sacrifice an established enterprise and income because of a little bug that can not be seen without a powerful microscope. There was nothing to do but beat the parasites, or sink in the effort.

Professor Knandel of Pennsylvania State College sent us a bulletin that he and Professor Charles had published on confinement rearing. We were so impressed by the possibilities of this method that we decided to raise all of our chicks in confinement in 1928.

We equipped all brooder houses with board platforms 8 feet wide and the length of each house, made frames 2 feet high for the sides, and frames for the top 8 by 4 feet. These frames were covered with fly screen to avoid the danger of flies bringing either coccidiosis or tape worms to the chicks.

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Again we started about 4,000 chicks. The caretaker wore rubbers when entering the brooder houses, and these rubbers were used for no other purpose. All brooder houses were cleaned at least once a week; and the sun porch more often than that—twice a week. A cresol solution was liberally used at each cleaning.

Following a continued rainy period during which time we found it impossible to keep the outside board platform clean or sanitary, even though they were cleaned each day, the inevitable result was an outburst of acute coccidiosis. Two methods were used in checking the outbreak. To certain brooder houses we gave the chicks a milk flush, and to an equal number we gave nothing. We did, however, clean and disinfect all brooder houses and sun porches twice each week for a period of three consecutive weeks.

### Mortality Cut to 5 Per Cent

As the days passed and our mortality amounted to less than 4 per cent of the chicks involved, our spirits and hopes began to rise; and we successfully combatted this outbreak of acute coccidiosis with less than 5 per cent loss.

The important feature to our mind in this instance was the fact that there was no noticeable or statistical difference in degree of infection, mortality, or time taken in recovery between the chicks that were flushed and whose runs and porches were cleaned twice a week, and the pens where simply the cleaning was employed.

This fact drove home to us with more force than ever before the truth of the old statement that "an ounce of prevention is worth a pound of cure." It was apparent that we lacked at least a fraction of an ounce of prevention and concluded that we would have better control of the hazards of chick raising if we equipped our board platforms with six inch frames covered with hardware cloth. We did this in the early summer of 1928, and there was no repetition of acute coccidiosis in our later hatches.

### Healthy Pullets on Wire

In the fall of 1928 we housed the healthiest pullets we had been able to raise since 1925. Everyone who saw them was impressed by their appearance, activity and apparent well being. Egg production increased at a normal and sustained rate, and we felt without question that our trials and tribulations were over. We decided that it would be a wise move to equip all brooder house floors with wire platforms as we had done with the sunporches for the brooding season of 1929.

To equip the brooder house with wire floors, we constructed wooden frames of 1 by 6 inches dressed boards in sections that could be easily removed for cleaning, and covered them with hardware cloth. The frames were painted with two coats of a good preservative to prolong the life of the wood, as well as to avoid the danger of red mite infestation. Since that time every chick raised on this farm has been started and reared on wire floors until maturity.

The procedure followed in the care of the chicks is the same as though litter were used, except for the fact that all wire near and a little under the hover should be covered with paper for the first few days. This paper acts as a blanket and the chicks are more contented.

Fundamentally the system used in 1938 is the same as when we started wire floors in 1929. The improvements we have been able to make have been in the fields of management and nutrition.

### Must Have Good Ration

Chicks raised in confinement show more quickly the bad effects of rations of poor quality ingredients or one lacking in sufficient and proper vitamins and minerals. Because of our experience we wish to call particular attention to the advisability of feeding chicks and growing birds raised in confinement no mash ration that is not based on quality rather than on a price basis. The difference in cost of feed per chick is negligible, and is more than made up by the number of chicks raised of superior vigor, health and size.

In the first few years of raising our chicks in this way little attention was paid to the feeding of grit. Experience proved conclusively that one of the most important organs of a bird's body is the gizzard, and to neglect it or to ignore it is about as foolhardy a thing to do as to wantonly neglect the proper care of the teeth of our children.

It is important that chicks receive grit from the time they are first fed, and it is also necessary to be sure that the grit used is an insoluble grit, otherwise, there is great danger of upsetting the calcium phosphorus ratio of the chick mash.

We feel that chicks should have grit with their first feeding, and our practice is to thoroughly mix 5 pounds of chick size insoluble grit with each 100 pounds of feed. When chicks are four weeks old we put grit of the proper size in 3-foot feed troughs and as soon as they eat the grit from this trough readily we discontinue adding it to the mash.

If chicks have access to all the grit they will eat when they are very small then some of them will consume so much grit that it will kill them, and others will not eat any.

### Toe and Feather Picking

The problem of toe and feather picking with young chicks can become a very serious matter and cause severe losses.

This is particularly true where wire floors are used, but this vice can be controlled, so that it does not prove serious either in young chicks or growing birds.

By painting the window panes of the brooder houses red, and running as low a temperature as possible and still keep the chicks comfortable, there will be very little trouble with that vice when they are young.

For some years, we had difficulty in controlling cannibalism in the growing pullets, and although we tried clipping the top of the beaks of the birds, as well as painting the tail feathers and vent with a distasteful but non-poisonous preparation, the benefits were only temporary.

However, there is no longer need of worry from that cause, as there are devices on the market to attach to the beaks of the birds that are very effective preventive agents, and these may be put on the birds at nine or ten weeks of age if necessary.

### Simple Methods Followed

In the feeding of the chicks and growing stock we follow as simple a system of care as is consistent with good brooding practices. For the first five or six weeks a good starting mash is kept before the chicks all the time. At six weeks of age we start feeding a medium sized chick grain shortly before chicks start to roost. A small amount is fed at first, but gradually increased until at nine weeks grain is kept before them in hoppers all the time as well as the mash.

It is our opinion that it is wise never to allow the hoppers to become empty. Empty hoppers mean idle chicks. Idle chicks may start toe or feather picking.

The ratio of grain to mash fed from nine to ten weeks on depends upon the brand of feed used and the advice of the manufacturer of same.

As the pullets show signs of developing combs they are put in their permanent laying quarters, with close attention paid to housing only pullets of equal appearance and development. This work is done in exactly the same way as though the pullets had been raised on range. We have no hesitancy in advocating our method of confinement rearing to all poultrymen who find it more difficult each year to raise strong and healthy pullets on range.

### Two Essentials for Confinement

This method will grow excellent birds of any breed, as well as turkeys, but there are two fundamental necessities that we cannot over emphasize.

The first one—chicks of high constitutional vigor.

The second one — feed throughout their lives compounded solely on a quality basis.

Chicks of low constitutional vigor fed a ration based on price, no matter what the analysis, means loss and heartache.

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## Chicks Which Hatch First Can Be Shipped Farther

Successful coast-to-coast shipments of baby chicks have been made regularly for the past two years by the simple method of shipping baby chicks at 20 days old, rather than waiting for their usual twenty-first day. These chicks at 20 days old are the few which invariably hatch out a day early in the average hatch.

While this isn't so much of a problem for breeders or hatcherymen selling only within a short radius, it does make it possible to send chicks to almost any purchaser in the United States with safety. It means that the usual maximum limit of around 3½ days can be extended a full day, and in 4½ days shipments can reach practically every corner of the nation. It also gives an added factor of safety for shorter shipments and will continue to have importance so long as chicks are unacceptable for air shipments.

The 20-day chicks are taken out of the incubator when they are still damp in most cases and placed in baby chick shipping boxes designed especially for this purpose. They arrive in Chicago in 2½ days, in New York in 3½ days, and then have another day if necessary for delivery farther east.

Our own experience has been that the 20-day chicks are just as vigorous and strong as any of the others. In scores of transcontinental shipments during the past two years to such states as New York, Pennsylvania, New Jersey, Maryland and Mississippi, we have received very favorable reports.

—J. A. Hanson in Poultry Tribune, February, 1939.

*Six years of laying tests in New York State offer some facts on the . . .*

# Egg Size and Production of Four Popular Breeds

By Robert C. Ogle
Extension Specialist, Cornell University

*Excerpt from Cornell Extension Bulletin 394*

IT must be conceded that much variation exists in the many strains of stock as now bred. This is also true when considered as a comparison between breeds as well as that of the strains within any breed.

Egg size showed a continued upward movement from the beginning of the pullet laying year to the end of the year.

Production started at a high level for pullets in each breed when they arrived at the laying tests on October 1. Barred Plymouth Rocks start more slowly than do the other three breeds and have not equalled or exceeded the monthly result of the other breeds until the fourth month of production (January). Whereas, the New Hampshires show a distinct lead in the first two months of production, but thereafter move forward through the year with a somewhat lower production in nine out of ten months. In egg size, the New Hampshires start with a larger egg than that of any of the other breeds. This advantage is continued through the year.

## Bird Weights at Laying Tests

Two facts are significant in the relation of high annual egg production to that of size of bird in the Mediterranean varieties, more particularly the Single Comb White Leghorns, and in the popular American breeds. In the White Leghorn group there has been comparatively little change in body size regardless of the rate of production, and in the American group the body size is small in comparison to the standard size when heavy rate of lay was made.

At these tests interesting changes are shown in the average weights recorded for the different breeds. The average weight of the birds in each year of the tests has increased steadily. This is true for all of the breeds represented.

The results of breeding and the better growing conditions are shown by the size of the pullets that have been entered in the tests each year and over this six-year period.

All of these birds show satisfactory increases in weight, and they have also closely approached the standard weights required for these breeds at the end of the laying year as mature birds.

## Body-weight Changes in White Leghorns

Workers at other tests have reported a change in rate of lay and that of body weight in the Single Comb White Leghorns. The large representation of strains in the New York tests offered a good opportunity to give further consideration to this factor. White Leghorns showed marked improvement in size as compared to the popular strains in this breed of a few years ago. The average weight of all Leghorns at the end of the pullet laying year was just under five pounds. The changes occurring through the variation in body weight and any relation that there may be

**Six-year Results of Body-Weight Change and Production, Single Comb White Leghorns at the Central and Western Tests**

| Weight per bird | Start of tests | | | End of tests | | |
|---|---|---|---|---|---|---|
| | Birds | Percentage of total | Annual production | Birds | Percentage of total | Annual production |
| Pounds | Number | Per cent | Per cent | Number | Per cent | Per cent |
| 3.5 or less...... | 1,205 | 23.2 | 60.8 | 135 | 2.6 | 50.6 |
| 3.6-4.5........... | 3,549 | 68.3 | 61.0 | 1,663 | 32.0 | 60.7 |
| 4.6 or more..... | 442 | 8.5 | 59.7 | 3,398 | 65.4 | 61.3 |

**Egg Score and Production per Bird for Four Popular Breeds, Six-Year Average**

| Months | Single Comb White Leghorns | | Single Comb Rhode Island Reds | | Barred Plymouth Rocks | | New Hampshires | |
|---|---|---|---|---|---|---|---|---|
| | Production | Egg score | Production | Egg score | Production | Egg score | Production | Egg score |
| | Per cent | Number | Per cent | Number | Per cent | Number | Per cent | Number |
| October........... | 61.8 | 89.1 | 56.4 | 92.5 | 54.0 | 89.5 | 70.7 | 93.6 |
| November........ | 70.7 | 94.4 | 74.2 | 97.3 | 66.1 | 93.1 | 75.4 | 99.1 |
| December......... | 70.4 | 100.0 | 75.0 | 101.7 | 67.8 | 97.8 | 70.6 | 103.5 |
| January.......... | 70.9 | 102.6 | 72.8 | 104.0 | 71.8 | 100.5 | 67.4 | 105.9 |
| February......... | 65.8 | 104.6 | 70.8 | 104.8 | 69.5 | 102.4 | 64.5 | 106.4 |
| March............ | 63.7 | 105.6 | 69.8 | 104.3 | 68.3 | 103.3 | 61.5 | 107.1 |
| April.............. | 67.2 | 106.0 | 67.6 | 105.6 | 69.8 | 103.7 | 62.4 | 107.6 |
| May.............. | 67.9 | 105.9 | 64.9 | 105.7 | 66.3 | 103.9 | 61.0 | 107.2 |
| June.............. | 66.8 | 105.9 | 61.2 | 105.5 | 61.2 | 103.8 | 56.8 | 107.1 |
| July.............. | 62.7 | 105.3 | 53.7 | 105.0 | 54.6 | 103.1 | 49.9 | 107.2 |
| August........... | 57.1 | 107.5 | 49.8 | 104.7 | 49.7 | 104.2 | 42.4 | 106.6 |
| September........ | 49.5 | 106.0 | 44.0 | 105.3 | 43.2 | 104.8 | 35.5 | 107.4 |

**Average Weight per Bird of Single Comb White Leghorns**

| Year | Weight at start of test | Weight at end of test | Change in weight | Increase |
|---|---|---|---|---|
| | Pounds | Pounds | Pounds | Per cent |
| First............................ | 3.7 | 4.5 | +0.8 | 21.6 |
| Second.......................... | 3.8 | 4.6 | +0.8 | 21.0 |
| Third............................ | 3.7 | 4.7 | +1.0 | 27.0 |
| Fourth.......................... | 3.9 | 4.9 | +1.0 | 25.6 |
| Fifth............................ | 4.0 | 4.9 | +0.9 | 22.5 |
| Sixth............................ | 4.0 | 4.8 | +0.8 | 20.0 |
| Six-year average.............. | 3.9 | 4.8 | +0.9 | 23.0 |

**Average Weight per Bird of Barred Plymouth Rocks**

| Year | Weight at start of test | Weight at end of test | Change in weight | Increase |
|---|---|---|---|---|
| | Pounds | Pounds | Pounds | Per cent |
| First............................ | 5.2 | 6.9 | +1.7 | 32.7 |
| Second.......................... | 5.3 | 6.4 | +1.1 | 20.7 |
| Third............................ | 5.2 | 6.6 | +1.4 | 26.9 |
| Fourth.......................... | 5.1 | 6.7 | +1.3 | 25.0 |
| Fifth............................ | 5.2 | 6.5 | +1.3 | 25.0 |
| Sixth............................ | 5.0 | 6.3 | +1.3 | 26.0 |
| Six-year average.............. | 5.1 | 6.5 | +1.4 | 27.4 |

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Excerpt from Cornell Extension Bulletin 394, "Six Years of Central and Western New York Official Egg-Laying Tests." Cornell University, Ithaca, N. Y.

between this factor and annual egg production are shown in the accompanying table.

The results at the end of the year show a striking upward trend in the higher weight groups and a very definite relationship in the higher annual production shown by each of these groups. These results clearly indicate that large-sized Single Comb White Leghorns cannot be considered as indicative of lower egg production.

Average Weight per Bird of Single Comb Rhode Island Reds

| Year | Weight at start of test | Weight at end of test | Change in weight | Increase |
|---|---|---|---|---|
| | Pounds | Pounds | Pounds | Per cent |
| First | 5.0 | 6.3 | +1.3 | 26.0 |
| Second | 5.2 | 6.4 | +1.2 | 23.1 |
| Third | 5.2 | 6.3 | +1.1 | 21.1 |
| Fourth | 5.2 | 6.5 | +1.3 | 25.0 |
| Fifth | 5.3 | 6.5 | +1.2 | 22.6 |
| Sixth | 5.2 | 6.1 | +0.9 | 17.3 |
| Six-year average | 5.2 | 6.6 | +1.4 | 26.9 |

## Breeding for Egg Quality

The time is fast approaching when progressive breeders are going to advertise that their birds lay eggs of high interior egg quality. It is on the horizon now and a few breeders are giving it consideration.

It is definitely known that a bird's egg quality remains quite constant for several weeks production. Therefore, in judging egg quality, it is necessary to open only two or three eggs from each hen.

Experiments have shown that a bird's egg quality (opened albumen appearance) is highest at the start of production during fall and winter, and falls off during the spring and summer. The drop, however, varies with individual birds. We are starting our second season of using this method for improving interior egg quality in the Massachusetts State College birds by scoring the eggs from all breeders at the start of the breeding season. A few years of selection should produce results.

—John H. Vondell in Featheredfax for December, 1938.

BROILED eggs are another style of egg cooking you'll enjoy if you are not already doing so. In order to have the eggs cooked throughout, start the eggs as for frying. When firm to your liking underneath, transfer to the broiler. Then cook to the desired yolk firmness.

Before transferring to the broiler, a bit of cream poured around the outer edge will give an appetizing brown border. Or, better still, start the frying pan with a generous amount of butter. The extra butter will flow over the eggs and give the same result with more flavor.

—Kathryn Bele Niles, U. S. Egg & Poultry Magazine, February, 1939.

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## Time Intervals in Egg Formation

From the Southwest Poultry Experiment Station, Glendale, Ariz., comes a report on the time elapsing between the laying of successive eggs in more than 10,000 cycles or series of eggs laid on successive days.

For nearly 5,000 two-egg cycles the average interval was 28.2 hours, while for cycles of three or more eggs the average interval between any two eggs was always less than 28 hours. The time between the first two eggs in a cycle tended to become less for the longer cycles. Thus for 2, 3, 4, 5 and 6-egg cycles, the time between the first two eggs was, respectively, 28.2, 26.6, 26.0, 25.7 and 25.6 hours. In cycles of four or more eggs, the time between the second and third eggs was always less than the time between the first and second eggs.

In cycles of three or more eggs, the time between the last two eggs was always greater than the time between any two preceding successive eggs. Not only this, but the time between the last two eggs in a cycle always averaged in excess of 26 hours, regardless of the number of eggs in the cycle.

The mean time interval between successive eggs was not influenced by age, restricted food intake, or close confinement.

There was a highly significant difference between Leghorn and Rhode Island Red hens in the mean of all time intervals in cycles of two, three and four eggs, the mean time interval being greater for Leghorns.

—Dr. L. E. Card in Poultry Tribune.

GROWING tired of seeing the plain yellow yolks of his eggs every morning, a Chicago poultry raiser conceived the idea of coloring them different colors.

Knowing that onions, horseradish, and certain bitter weeds will give the egg a bitter taste when eaten by the hen, he asked himself, why not put coloring matter in their feed and color the eggs? And that is what he did. The result was colored eggs.

Common dye would not work, as it is poison. The next idea was to use a commercial dye similar to the kind used in coloring pastry and fluids. This dye can be used without danger of poisoning the eggs.

The egg yolks do not begin turning color until the third day after the dye has been applied to the feed. The third day a slight change takes place in the yolk, and by the tenth day the yolk turns to a solid color. Any color dye can be used—red, green, blue, purple, etc. Cakes, pastries, salads are given a new and distinctive touch when these colored eggs are used. Salads using eggs, especially, are brightened with the red, green, or blue centers surrounded by the white of the egg. The whites are not affected by the coloring matter.

—Poultry Item, January, 1939.

GREAT BRITAIN imports more eggs than the rest of the world put together, and imports of eggs in 1937 were higher than for any year since 1931, yet prices for Britain-produced eggs for 1937 were 3 per cent higher than for 1936.

—Feathered World, London, England.

# QUESTIONS AND ANSWERS

## Number of Male Birds to Females in Breeding

**Question** — How many male birds should be provided for each one hundred hens in the breeding flock?

**Answer**—The approximate ratio for best results under average conditions seems to be about as follows: Asiatic breeds, 1 male to 8 or 10 hens; American and English breeds, 1 to 10 or 15; Mediterranean breeds, 1 to 15 or more, up to 25.

As a rule cockerels will take care of about 25 per cent more hens than a cock bird.

—Noel Bennion, The Eggsaminer.

## Duration of Fertility After Removal of Male

**Question** — When the males are taken out of the breeding pens, how long will reasonably good fertility continue? When one male replaces another, how long before the influence of the second male takes place?

**Answer**—After the males are removed, reasonably good fertility may be expected to continue for at least a week or ten days. Fertile eggs have been produced twenty-one days after the males have been removed from the pens.

This does not mean that in the case of replacing one male with another it is necessary to wait a minimum of three weeks in order to be sure that the influence of the first male has entirely been removed. It has been demonstrated that if a male is replaced by another one, the offspring of the second male very soon supplant those of the first, and that there is very little overlapping of the two. The influence of the replacing male begins to appear the second or third day.

—Noel Bennion, The Eggsaminer.

## How Soon After Mating Will Eggs Be Fertile?

**Question** — How long should male birds be in the flock before hatching eggs are saved?

**Answer**—The male birds should be in the flock about two weeks before hatching eggs are saved. Fertile eggs may be produced twenty-four hours after mating takes place and sometimes the entire flock will be producing fertile eggs after the males have been in three or four days. However, when males are first put in the breeding pens often much fighting takes place so in order to insure good fertility ten days or two weeks should be provided before eggs are used for hatching.

—Noel Bennion, The Eggsaminer.

## Keeping the Old Hens

**Question**—Is it profitable to keep old hens, and if so, what percentage of the flock should be pullets and what percentage old hens?

**Answer**—The answer to this question depends somewhat on the breeding and quality of the stock. The better quality of birds a poultryman has, the higher percentage of old hens he can carry over. If the flock is

of good quality, about 50 per cent should be pullets and 50 per cent old hens.

A poultryman should keep in mind that he has about twice the investment in a pullet he has in a year-old hen. For example, pullets are worth from $1.00 to $1.25 when they are ready to lay, while the best of year-old hens will only bring from 50 cents to 60 cents per bird. As a rule, pullets will produce about 20 per cent more eggs than year-old hens, but their eggs are smaller, especially during the fall months when the prices are highest. The mortality among pullets is usually 10 to 12 per cent higher than in year-old hens, also.

Taking everything into consideration, year-old hens, if well culled, are often just as profitable as pullets. This condition may be changed somewhat with the heavier breeds where the year-old hens bring a higher price on the market.

—Nulaid News.

## Crop Bound

**Question**—Please give me the cause and cure for crop bound.—Mrs. I. A. S., Pa.

**Answer**—A crop bound condition of hens is easily caused by their picking up a lot of fibrous material such as straw, string, rope or similar material. Sometimes birds have quite a habit of eating litter which, if it consists of straw, is likely to cause this condition.

If the condition seems to be prevalent throughout the entire flock, I suggest that you remove the litter from the floor for a period of a week or ten days or as short a time as possible in order to see if they can be gotten out of the habit of eating this sort of material. I also suggest you feed the birds some good hard grit which may help the crops grind up this sort of material better.

If there are only a few birds that are affected in the flock, I suggest you pour a teaspoonful or two of either castor oil or olive oil down their throats and massage the crops with your hands for 5 minutes or so, then turn the bird upside down and let what material run out that will. You might do this twice a day for such birds. Of course, it is possible to operate on such birds and it is not a difficult operation to perform, but I would not advise it except as a last resort.

—American Poultry Journal.

## Sexing Chicks

**Question**—Does sexing chicks harm them in any way?—A. H. B., Ind.

**Answer** — If chick sexing is done carefully there is no danger of any serious harm being done the chicks. When this work was first done, some of the sexers may have injured a few of the chicks, but as more experience was gained the sexers learned to do the work efficiently, carefully, and without injury.

A careful check on sexed and unsexed chicks during the brooding period indicates that the average mortality over a period of two or three years is practically the same.

—Poultry Tribune.

## Necrosis of the Beak

**Question**—I am raising my young chickens on a finely ground mash in battery brooders. The upper and lower beaks on some chickens turn brown and dead. What is this, and how can it be prevented?

**Answer**—Your description suggests a conditions known as necrosis (death) of the beak. Necrosis is a term used for dead tissue. This is sometimes observed when feeding a finely ground all mash ration to young chickens in batteries. The mash sticks to the upper and lower beaks and sets up an inflammation, which may be accompanied by infection of the part.

Treatment consists in removing the mash which is sticking on these parts and applying tincture of iodine to the inflamed area. The feed should be changed to a more coarsely ground mash.

—C. E. Sawyer, Washcoegg.

## About Guineas

**Question** — How long does it take for guinea eggs to hatch? How do you determine the sex of guineas?—Mrs. R. J., Mich.

**Answer**—The incubation period for guinea fowl eggs is 28 days.

A good way to discover the sex of a guinea is to shut it in a coop out of sight from its mates and note its call. If a female, the call will sound somewhat like "buckwheat." The male's call is a short "chit, chit," followed by a harsh noise like a buzz saw. The males also have a larger helmet and wattles and coarser head furnishings.

—American Poultry Journal.

## U. S. Egg Weights

**Question**—What are the weights of the various grades of eggs, according to Government grading?—W. F. C., Pa.

**Answer** — Weight requirements for various grades of eggs according to Government gradings are as follows: U. S. Extras — 100 per cent U. S. Extras or better, weight 24 oz. per dozen net, minimum rate 22 oz. for individual eggs. When conditions warrant, a grade of U. S. Specials may be used in buying eggs of a better quality than U. S. Extras.

U. S. Standards—100 per cent U. S. Standards or better, weight 24 oz. net per dozen, minimum rate 22 oz. for individual eggs.

U. S. Trades—100 per cent U. S. Trades, U. S. Standard Dirties, and U. S. Trade Dirties or better, weight 22 oz. net per dozen, minimum rate 18 oz. for individual eggs.

U. S. Checks — 100 per cent U. S. Checks or better, no specified or minimum weight required. When conditions warrant, U. S. Checks may be included in the buying grade of U. S. Trades.

—American Poultry Journal.

## *For Chicken-Catching Pigs*

Farmers who have chicken-catching pigs should take a tip from C. D. Haufman of Harvey County, Kansas. Mr. Haufman built an electric fence around his feeding pen. Before he got the "juice" turned on, another of his pigs caught a chicken. The incident was promptly turned into an object lesson for the whole hog family. The chicken was placed just outside the live wire and the current turned on. As the pigs tried to reach the chicken, they got nipped. As proof of the value of the experiment, Mr. Haufman offers the fact that he hasn't lost any more chickens, which should be enough said.

—American Poultry Journal
February, 1939

# VIEWS OF THE EDITORS

## Upswing

Practically everyone, it seems, feels that the upswing will make great progress in 1939. That will mean vastly increased buying power to absorb the products of poultrymen. Irrespective of prices at the moment, the important thing in planning the year's work is to know what the prospects may be for operations started this spring for completion next fall. At this season, the poultryman naturally has to look six months ahead. It takes about that long to mature a chick into a productive pullet.

There are a few points that the poultryman may well consider. Taking the business of the country as a whole, there is more cheerfulness in the outlook of business men. Conditions are more reassuring than at this time a year ago. There has already been some recovery in the last six months. The Administration now seems more concerned with economic improvement than with some other phases of past programs. It can hardly be too strongly stressed that with a period of real business activity in U. S. goods would move off dealers' shelves with dispatch, and while food consumption is relatively stable, the higher grade foods, such as eggs, butter and chickens, would be supported by materially strengthened buying power. That this is the pattern of things to come in 1939 is quite generally believed.

Some important parts of the Government spending program will not hit their stride until April, 1939. That this program will stimulate building is unquestionable, and building, with all its ramifications, is the one biggest industry in U. S. Watch it in April, rather than egg prices, as the barometer for the months ahead.

—Frank L. Platt, American Poultry Journal, February, 1939

## Milk Bars

Pacific Coast supplies are still light, due to the reduction in operations there. Their product sells very well, as many buyers have been educated to feel that they can depend on both grade and quality. Anything in an egg case from the West Coast will be what it is said to be.

Milk production has expanded to the largest on record. Milk bars are being operated in cities, and people are drinking a lot of milk. Butter appears in excess supply and the Government continues to buy it. More people should cut a hunk of real cow's butter and put it in their egg cup in the morning, with two or three hot, medium boiled eggs. Then some toast and coffee.

—Frank L. Platt, American Poultry Journal, February, 1939

## Synthetic Capsules or Natural Foods?

Why should we buy our vitamins in capsules at the drug store when thousands of grocers throughout the country have plenty of natural vitamins to sell? Why not cultivate the habit of thinking of vitamins in terms of milk, carrots, lettuce, spinach, apples, oranges, eggs, etc.? Dr. Simmonds of the University of California School of Medicine, we understand, believes that ads of synthetic vitamins are causing people to seek in drug store capsules that which they can obtain in natural form and goodly amounts in their daily diet, if reasonably well balanced.

Eggs, for example, are quite well supplied with vitamins A and G, which are two very important vitamins in promoting human health. They are also rich in iron, so essential in preventing and curing anemia; in organic sulphur which promotes good digestion; in potassium which is essential to normal heart action and healthy functioning of the body glands.

As a food, eggs are second to none in nutrient value and in appeal to the appetite. "Ham or bacon and" are always popular, and eggs in any form add health and zest to almost any dish. We should aim to get our vitamins by eating plenty of vitamin-rich foods, such as vegetables, fruits and eggs.

—Nulaid News, January, 1939.

## Britain Decides to Grant Sum for Congress Exhibit

The Government has wisely foreseen the consequences of not providing a British exhibit at the World's Poultry Congress at Cleveland next July. It is now announced that the Treasury has revised its decision and will provide two-thirds of the total sum required to stage a British national exhibit, up to, and not exceeding, 600 pounds.

Since the total cost of a British exhibit will be at least 1,200 pounds, a large contribution will still be required from the industry. But the support of the Treasury will be widely appreciated.

The British national exhibit in the past has been confined to a general review of the work of the British poultry industry, and the livestock exhibit has been a separate entity, whose existence has depended upon tenders from exhibitors.

It is to be hoped that this year the British national exhibit will be concentrated upon the productive qualities and stamina of British stock: a feature which has not received sufficient attention in the past. It will thus help to draw attention to the separate livestock exhibit, over which a good poultryman and salesman should be put in charge.

—Feathered World, London, Jan. 6, 1939.

## Congress Members Have a Responsibility

The World's Poultry Congress is putting the spot light on a lot of people and what a revelation it has been. Some of our "poultry leaders" are proving to have a manly chest beneath their shirt bosoms, while others have their brassieres stuffed with sawdust. A letter from a man who has worked hard on one of our state committees, reads in part as follows:

> "Last week we had a meeting in the county in which one of the members of a World's Poultry Congress Committee resides. While he attended the meeting, he took no active part in it and refused to accept an office in the county organization. This particular man will probably wear one of the biggest badges and will be one of the biggest paraders at the Congress. It goes a little against the grain to be putting so much time and worry on the Congress and yet see some of the fellows who will parade the elephant not exercising themselves now while we need their help."

Not only does the above apply to Congress activities, but to the fact that our badge wearer will unblushingly accept the good which comes to the poultry industry through the hard work of others and will act as if he really deserves good fortune and an improved market for his product.

Membership on committees and office-holding in any organization carries with it an implied responsibility. The man who accepts the honor without the work and responsibility will eventually find himself with very little honor and practically no responsibility.

—World's Poultry Congress Bulletin, January, 1939.

## Poultry Thieving

Rustling, or raiding poultry farms on a carefully planned system with fast lorries, is increasing rapidly all over the country. Poultry societies and National Farmers' Union branches all over the country find it a topic for discussion at every meeting.

Ordinary locks and alarms are of little use. The thieves know how to dodge them. Local police cannot be everywhere at once. In most country districts there is only one policeman for a big area, and he must go to bed some time. So bold have the rustlers become that they raid by day as well as by night.

The only remedy suggested by N. F. U. and other local bodies at present is some regulation forbidding the transport of poultry by night without special license, because it is very rare that any honest man wants to move poultry by night.

But this is a clumsy way of tackling the problem. It means more regulations, of which we have already far too many. It would be a nuisance in some cases. Moreover, at present the police can stop any lorry or car they have reason to suspect.

There is a simpler and more effective way of making rustling too dangerous for the rustlers. It has been very successful in America, where rustling was first developed on a business scale, but is now negligible.

In America, a farmer tattoos his birds on the web of the wing. It has only to be done once in a bird's lifetime. When any birds are missed, the police are notified. A watch is then kept on all markets and dealers in a wide area. When the tattooed birds are found, the thieves can be traced.

No reputable poulterer will handle tattooed birds unless he knows where they come from, because he runs the risk of being charged as a "receiver." So successful has tattooing been in America that it is sufficient for many farms to put up a notice, "All birds tattooed," to keep the rustlers away.

—Feathered World, London, Dec. 30, 1938.

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❝ LEADERS of this billion dollar industry represented by producer, processor, distributor and others have left almost entirely undone some of the essentials necessary for keeping the products of this industry competitive with other food products. Eggless breakfasts in America are constantly increasing because of the efforts of the manufacturers of various breakfast foods through advertising and other mediums to replace the egg with their products.

—From talk at the Fact Finding Conference by R. F. Eagle, Wilson & Co.

# Fascination in Poultry

By Arthur S. Draper

*Reprinted from New England Homestead*

WHAT is it that drives us, old and young, to try to make a living out of raising chickens? My son is 28 years old, has had an exceptionally good education, is a reporter on one of the outstanding newspapers of the United States and yet his real ambition is to run a chicken ranch.

I have spent many years in daily and weekly journalism, been a war correspondent in the Great War, served as an assistant editor of a leading Republican newspaper of the country, been an editor of a nationally known magazine, worked for the government—and still the thing I enjoy most is trying to get a profit out of raising chickens.

My home is located in a part of the county where the seasons and elements are all against one who is trying to obtain a living out of a chicken ranch. The summer season is short; the possibility of raising grain for the chickens is lamentably small; the cost of building suitable quarters for the long winter months is high; all the factors that one must consider in investing a sizeable sum are against the investment. Still I haven't a single regret; the Rhode Island Reds are now putting us in the black. The struggle has been long and hard; the fascination still continues.

There are many things easier than raising chickens profitably; there are few adventures where the gamble is greater. With all the gigantic strides made in science, the gamble still continues. The tendency to paint the picture a bit too rosy has hurt rather than helped the industry. The language of chicken farming should be simpler; technical terms are intelligible to the experts, but they mean less than nothing to the great bulk of the adventurers, who put all their savings into the game, convinced that after a few months so many pullets will lay so many eggs at so much a dozen, and then all they will have to do is to deposit their profits in a savings bank.

In too many cases the adventurers fail to find the pot of gold at the end of the season. What happens then? They turn from being chicken enthusiasts to aggressive defeatists, discouragers of all their friends who have still to take the dive. Scores of my friends in New York City, old professional associates, smile when I say that I am a chicken farmer. They consider it a joke. They know facts and figures, they know advertising; they are veterans in the game of making a living. It is difficult to convince them that a chicken ranch can show not only a profit but a living. They would like to tackle it, but they are skeptical.

Whether my guess is right or wrong, the fact remains that each generation is anxious to try its hand, confident that success is right around the corner. We are a gambling nation; we are a pioneering people; we demand two eggs at breakfast.

New England Homestead Company, 29 Worthington St., Springfield, Mass.
(New England Homestead, Dec. 17, 1938)

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# POULTRY STATISTICS

## Hens on Farms—Rate to Lay

**Number of Hens Per Flock, and of Eggs Laid Per Hen and Per Flock, First Day of Month**

| Geographic Division | Layers per flock |  |  | Eggs per 100 layers |  |  | Eggs per flock |  |  |
|---|---|---|---|---|---|---|---|---|---|
|  | Nov.1 | Dec.1 | Jan.1 | Nov.1 | Dec.1 | Jan.1 | Nov.1 | Dec.1 | Jan.1 |
| North Atl. |  |  |  |  |  |  |  |  |  |
| 1927-36 (Av.) | 86.9 | 92.5 | 95.8 | 18.6 | 19.2 | 23.1 | 16.0 | 17.7 | 22.1 |
| 1937 | 87.3 | 94.5 | 104.1 | 23.8 | 27.6 | 31.2 | 20.6 | 26.1 | 32.2 |
| 1938 | 88.7 | 96.3 | 96.7 | 26.8 | 27.5 | 32.0 | 23.8 | 26.6 | 30.9 |
| 1939 |  |  | 98.4 |  |  | 32.7 |  |  | 32.2 |
| North Cent. |  |  |  |  |  |  |  |  |  |
| 1927-36 (Av.) | 97.9 | 108.5 | 116.4 | 15.6 | 12.2 | 14.9 | 15.4 | 13.5 | 17.6 |
| 1937 | 89.1 | 98.0 | 111.4 | 19.0 | 16.0 | 20.0 | 17.2 | 16.4 | 23.1 |
| 1938 | 93.4 | 102.4 | 102.4 | 20.4 | 17.8 | 20.5 | 19.4 | 18.9 | 21.7 |
| 1939 |  |  | 110.4 |  |  | 23.2 |  |  | 26.1 |
| South Atl. |  |  |  |  |  |  |  |  |  |
| 1927-36 (Av.) | 53.9 | 57.4 | 60.5 | 19.4 | 17.8 | 19.9 | 10.6 | 10.2 | 12.0 |
| 1937 | 50.7 | 52.5 | 61.4 | 22.9 | 21.4 | 22.6 | 11.7 | 11.3 | 13.8 |
| 1938 | 53.3 | 56.0 | 55.8 | 23.9 | 23.3 | 25.7 | 12.7 | 13.1 | 14.3 |
| 1939 |  |  | 59.9 |  |  | 25.9 |  |  | 15.5 |
| South Cent. |  |  |  |  |  |  |  |  |  |
| 1927-36 (Av.) | 59.5 | 62.8 | 67.6 | 19.6 | 15.6 | 17.3 | 11.7 | 9.9 | 11.8 |
| 1937 | 54.1 | 56.6 | 64.7 | 22.0 | 17.8 | 19.9 | 12.1 | 10.3 | 12.9 |
| 1938 | 57.5 | 60.6 | 59.3 | 22.8 | 19.2 | 20.3 | 13.2 | 11.9 | 12.2 |
| 1939 |  |  | 63.6 |  |  | 22.3 |  |  | 14.4 |
| Western |  |  |  |  |  |  |  |  |  |
| 1927-36 (Av.) | 67.0 | 71.4 | 74.1 | 21.8 | 18.4 | 22.1 | 14.3 | 12.7 | 15.8 |
| 1937 | 66.8 | 70.3 | 72.2 | 25.9 | 22.0 | 26.4 | 16.5 | 15.2 | 18.6 |
| 1938 | 67.3 | 71.1 | 71.1 | 25.5 | 21.1 | 26.4 | 16.9 | 14.4 | 18.3 |
| 1939 |  |  | 72.6 |  |  | 27.1 |  |  | 19.6 |
| United States |  |  |  |  |  |  |  |  |  |
| 1927-36 (Av.) | 74.9 | 81.1 | 86.5 | 17.6 | 14.7 | 17.3 | 13.4 | 12.0 | 15.0 |
| 1937 | 69.3 | 74.4 | 84.2 | 21.1 | 18.6 | 22.0 | 14.7 | 14.1 | 18.5 |
| 1938 | 72.5 | 78.0 | 77.6 | 22.3 | 19.9 | 22.7 | 16.3 | 15.9 | 17.8 |
| 1939 |  |  | 82.8 |  |  | 24.6 |  |  | 20.4 |

Favorable weather, abundant feed supplies and a very favorable egg-feed-ratio continue to encourage heavy feeding for egg production. As a result, new record high levels of egg production per layer and per farm flock were established for January 1. The increase in the size of the farm laying flock during 1938 was the largest of record, with more potential layers on hand at the close of the year than for several years.

The average number of eggs laid on January 1 per 100 layers in farm flocks was 24.6 compared with 22.7 a year ago and the 10-year (1927-36) average of 17.3. This is a new high record for January 1, exceeding the previous high of last year by about 8 per cent and the 10-year average by about 42 per cent. New high records were indicated in all geographic areas. In the West North Central area about 18 per cent more eggs per 100 layers were shown, in the South Central about 10 per cent, in the East North Central about 7 per cent, in the Far West about 3 per cent, in the North Atlantic about 2 per cent and in the South Atlantic about 1 per cent. This is the third consecutive year the January 1 record has been equaled or broken in all geopraphic areas.

The reported average production per farm flock likewise indicates a new high for January 1. Although the number of layers per farm flock was about 4 per cent below the 10-year average, the increased rate of lay was sufficient to bring total egg production about 36 per cent above the 10-year average production on January 1.

The average number of hens and pullets of laying age in farm flocks belonging to crop reporters on January 1, 1939, was 82.8 compared with the record low of 77.6 on the same date in 1938 and the 10-year average of 86.5. Compared with a year ago, increases were shown in all geographic areas: In the West North Central States, about 13 per cent; in the South Atlantic and the South Central States about 7 per cent; and in the North Atlantic, East North Central and Far Western States, about 2 per cent. Compared with the 10-year average, decreases were shown in all geographic areas except the North Atlantic where an increase of about 3 per cent was shown.

For the United States, the seasonal increase in the number of layers during the four months September to December was about 38 per cent compared with the 10-year average of about 34 per cent. The seasonal increase was above the 10-year average in all geographic areas except the North Atlantic where it was about 3 per cent below average.

In all geographic areas except the Far Western States, the number of pullets not of laying age in farm flocks on January 1 was larger than in any year since the record began in 1936. In the Far Western States there were about 10 per cent fewer than a year earlier.

—Comment from Poultry and Egg Production Report.

## Egg Prices

**1939 Egg Prices at New York City**

| Kind | Jan. 6 | Jan. 13 | Jan. 20 | Jan. 27 | Jan. 27, 1938 |
|---|---|---|---|---|---|
| Mixed Color Firsts | 21¼ | 20½ | 18½ | 16¾ | 19¼-19¾ |
| Nearby and Midwestern White Premium Marks | 25 -26 | 25 -26 | 23 -24 | 22 -23 | 23 -24½ |
| Nearby and Midwestern White Specials | 23½-24 | 24 | 21¾-22 | 21 | 22½ |
| Pacific Coast Specials | 26½-27 | 25 -26 | 25½-26 | 25½-26 | 24¾-25 |
| Nearby and Western Brown Exchange Specials | 23 | 22½ | 21 | 20½ | 22½ |

January price declines represent a net reduction of about 7 to 8 cents per dozen on eggs of average quality, with a greater drop on some of the higher qualities. These declines are not so great as have occurred in other years, but in view of the fact that the general egg price level has been relatively low, actual prices at the moment are among the lowest that have prevailed at this season for many years.

**Farm Prices of Eggs per Dozen**

(Figures given in cents)

| Year | Jan. 15 | Feb. 15 | Mar. 15 | May 15 | July 15 | Aug. 15 | Oct. 15 | Nov. 15 | Dec. 15 |
|---|---|---|---|---|---|---|---|---|---|
| Average 1925-34 | 31.0 | 24.0 | 19.3 | 18.7 | 20.0 | 22.0 | 30.0 | 35.4 | 35.7 |
| 1937 | 23.1 | 20.1 | 19.9 | 17.9 | 19.4 | 20.4 | 25.2 | 28.0 | 26.0 |
| 1938 | 21.6 | 16.4 | 16.2 | 17.6 | 19.9 | 21.0 | 27.1 | 29.0 | 27.9 |
| 1939 | 18.8 | | | | | | | | |

In view of the statistical position of egg markets during the summer and fall of 1938, a somewhat different picture than now exists may have been expected by many in the industry. Until December, market receipts of eggs were lighter each month of 1938 than a year earlier, and the entire season was marked by short supplies of eggs in storage. Weekly marketing of eggs on the West Coast were lighter than a year earlier during all of 1938, and still are to date. The same may be said of deliveries to Central West country plants during that part of 1938 when the bulk of production occurs. In October, however, deliveries in this area began to show increases over the corresponding periods of 1937, and toward the last of November seasonal increases were registered each succeeding week. An increased rate of winter production was indicated in the crop reports for both December 1 and January 1. This was reflected in receipts at Eastern terminal markets, which during December were 8 per cent heavier than in December 1937. A similar increase over a year ago has been shown in the January receipts. The heavy rate of production has been attributed to a combination of relatively favorable weather, abundant feed supplies, a favorable feed-egg ration, and more early pullet layers in flocks. Increases in current and prospective production and the nearness of the coming new season, taken together, seem to have accounted for the lack of confidence manifested by traders this month.

—Comment from Monthly Egg and Poultry Markets Review.

## Poultry Meat Prices

**Farm Prices of Chickens per Pound**

(Figures given in cents)

| Year | Jan. 15 | Feb. 15 | Mar. 15 | May 15 | June 15 | July 15 | Sept. 15 | Nov. 15 | Dec. 15 |
|---|---|---|---|---|---|---|---|---|---|
| Average 1925-34 | 16.8 | 17.2 | 17.5 | 18.3 | 18.0 | 17.8 | 17.3 | 16.2 | 15.8 |
| 1937 | 13.4 | 13.6 | 14.4 | 14.8 | 14.8 | 15.3 | 17.4 | 16.9 | 16.4 |
| 1938 | 16.7 | 16.0 | 15.9 | 16.1 | 15.7 | 15.0 | 14.3 | 13.6 | 13.6 |
| 1939 | 14.0 | | | | | | | | |

Labor difficulties during the month in most branches of the live poultry trade at New York City, resulted in very unsettled trading at that market. As a result, it has been difficult to ascertain what values were from day to day.

# Receipts of Eggs and Poultry

**Receipts of Eggs (Cases) at 4 Markets***

| Geographic Sections | December 1938 | December 1937 | % change | Jan. to Dec., Inc. 1938 | Jan. to Dec., Inc. 1937 | % change |
|---|---|---|---|---|---|---|
| New England | 44,160 | 39,171 | + 12.74 | 313,984 | 360,041 | − 12.79 |
| Middle Atlantic | 131,079 | 135,122 | − 2.99 | 1,654,411 | 2,316,331 | − 28.58 |
| South Atlantic | 14,666 | 10,805 | + 35.73 | 256,244 | 459,090 | − 44.19 |
| East North Central | 214,877 | 171,013 | + 25.65 | 2,716,621 | 3,507,864 | − 22.56 |
| West North Central | 216,855 | 131,204 | + 65.28 | 6,525,287 | 5,320,047 | + 22.65 |
| South Central | 416 | 550 | − 24.36 | 99,409 | 80,343 | + 23.73 |
| Mountain | 22,665 | 42,353 | − 46.49 | 438,990 | 502,248 | − 12.59 |
| Pacific | 38,383 | 101,091 | − 62.03 | 692,266 | 983,975 | − 29.65 |
| Miscellaneous | 275 | 328 | − 16.16 | 5,123 | 7,430 | − 31.05 |
| TOTAL | 683,376 | 631,637 | + 8.19 | 12,702,335 | 13,537,369 | − 6.17 |

**Receipts of Dressed Poultry (pounds) at 4 Markets***

| Geographic Sections | December 1938 | December 1937 | % change | Jan. to Dec., Inc. 1938 | Jan. to Dec., Inc. 1937 | % change |
|---|---|---|---|---|---|---|
| New England | 619,914 | 90,049 | +588.42 | 11,744,205 | 5,804,247 | +102.34 |
| Middle Atlantic | 800,705 | 479,410 | + 67.02 | 34,893,733 | 28,864,212 | + 20.89 |
| South Atlantic | 751,261 | 629,778 | + 19.29 | 7,657,637 | 4,207,131 | + 82.02 |
| East North Central | 7,224,325 | 4,666,361 | + 54.82 | 36,883,326 | 43,618,117 | − 15.44 |
| West North Central | 41,900,767 | 33,828,278 | + 23.86 | 192,885,479 | 180,715,662 | + 6.73 |
| South Central | 5,692,460 | 6,199,442 | − 8.18 | 33,056,019 | 39,996,883 | − 17.35 |
| Mountain | 4,479,416 | 4,639,948 | − 3.46 | 9,363,789 | 11,171,451 | − 16.18 |
| Pacific | 1,617,431 | 3,145,667 | − 48.58 | 11,403,785 | 14,112,045 | − 19.19 |
| Miscellaneous | 20,000 | 0 | − | 20,000 | 0 | − |
| TOTAL | 63,106,279 | 53,678,933 | + 17.56 | 337,907,973 | 328,489,748 | + 2.87 |

* New York, Chicago, Philadelphia and Boston.

Prices in other markets eased off slightly toward the latter part of the month. The above mentioned interruption in the regular movement of live poultry at New York increased the difficulty of assembling information regarding market arrivals there, particularly those by truck. Receipts at Chicago during the first 3 weeks of January were 15 per cent heavier than the corresponding period of 1938, which is in line with the trend since last July. At country packing plants in the Central West, total receipts of live poultry continue to show increases over a year ago, with the largest portion of the increase still being young stock. During the week ending January 21, the increase in total receipts was 16 per cent. The increase on young stock alone that week was 84 per cent, while the increase in fowl was less than 1 per cent. Lest these comparisons in themselves be misleading, it is to be noted that since the latter part of December, combined total receipts of young and old stock have been running less than half of what they were during the fall and early winter. Another observation is that receipts of young stock have tended to decline seasonally since December 1, while older stock has shown a general tendency to increase. Still another point is that since the holidays, young stock made up less than 30 per cent of total receipts, compared with more than 50 per cent during the period from September 1 until after holiday marketings were over.

Receipts of dressed poultry at the four markets, New York, Chicago, Philadelphia, and Boston since January 1 are about 25 per cent greater than during the corresponding period of 1938. Philadelphia alone shows a slight decrease. Total U. S. stocks of dressed poultry in cold storage on January 1 were 139 million pounds compared with 123½ million pounds a year earlier. Weekly reports for the 35 cities show that stocks of this product continued to increase during early January, but that the movement is now outward, with current stocks about where they were on the first of the month.

—Comment from Monthly Egg and Poultry Markets Review.

**Receipts of Eggs at Eastern Egg Auctions**

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| December 31, 1938 | 22 | 25,579 | +2.44 | +20.50 |
| January 7, 1939 | 22 | 26,182 | +6.94 | +22.94 |
| January 14 | 21 | 26,549 | +1.03 | +19.01 |
| January 21 | 27 | 32,111 | +3.41 | +31.13 |
| January 28 | 24 | 26,619 | −2.99 | +32.70 |

**Receipts of Eggs at Pacific Coast Primary Markets**

| Week Ending | No. of Plants | Cases of Eggs | | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| | | 1938 | 1937 | | |
| December 31, 1938 | 63 | 55,894 | 67,313 | +2.67 | −16.96 |
| | | 1939 | 1938 | | |
| January 7, 1939 | 65 | 56,468 | 71,239 | +0.43 | −20.73 |
| January 14 | 61 | 57,936 | 68,513 | +4.44 | −15.44 |
| January 21 | 63 | 58,530 | 69,387 | +1.73 | −15.60 |
| January 28 | 62 | 61,640 | 70,769 | +5.02 | −12.90 |

**Receipts of Eggs and Poultry at Central Western Primary Markets**

| Week Ending | Cases of Eggs | | | Pounds of Poultry (000 omitted) | | | Pounds of Young Stock (000 omitted) | | | Pounds of Fowl (000 omitted) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1938 | 1937 | % Chg. | 1938 | 1937 | % Chg. | 1938 | 1937 | % Chg. | 1938 | 1937 | % Chg. |
| Dec. 31 | 32,085 | 18,173 | +76.55 | 2,522 | 2,458 | + 2.58 | 897 | 590 | + 51.91 | 1,547 | 1,800 | −14.04 |
| | 1939 | 1938 | | 1939 | 1938 | | 1939 | 1938 | | 1939 | 1938 | |
| Jan. 7 | 48,630 | 30,689 | +58.46 | 1,970 | 1,865 | + 5.62 | 597 | 459 | + 30.07 | 1,267 | 1,390 | − 8.81 |
| Jan. 14 | 56,197 | 43,546 | +29.05 | 2,537 | 1,904 | +33.19 | 729 | 360 | +102.29 | 1,744 | 1,481 | +17.81 |
| Jan. 21 | 65,713 | 51,705 | +27.09 | 2,451 | 2,119 | +15.69 | 651 | 353 | + 84.32 | 1,726 | 1,715 | + .64 |
| Jan. 28 | 66,147 | 64,714 | + 2.21 | 2,290 | 1,681 | +36.22 | 436 | 233 | + 87.18 | 1,772 | 1,389 | +27.58 |

# Egg-Feed Ratios

**New York Egg-Feed Ratio**

| Week Ending | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration | | | Av. Egg Price per Doz. (Dollars) | | | Av. Feed Cost per 100 lbs. (Dollars) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1939 | 1938 | 1937 | 1939 | 1938 | 1937 | 1939 | 1938 | 1937 |
| January 5 | 6.0 | 7.0 | 8.9 | .280 | .263 | .287 | 1.68 | 1.85 | 2.57 |
| January 12 | 7.3 | 7.6 | 9.8 | .231 | .249 | .264 | 1.68 | 1.87 | 2.59 |
| January 19 | 7.3 | 7.7 | 9.9 | .228 | .244 | .257 | 1.65 | 1.88 | 2.55 |
| January 26 | 8.2 | 8.7 | 10.0 | .203 | .219 | .249 | 1.67 | 1.90 | 2.52 |

### Chicago Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration | | | Price of Fresh Graded Firsts (Dollars) | | Cost of Ration per 100 lbs. (Dollars) | |
|---|---|---|---|---|---|---|---|
| | | | 10-Yr. Av. | | | | |
| | 1938 | 1937 | 1929-37 | 1938 | 1937 | 1938 | 1937 |
| December 31 | 4.31 | 4.89 | 4.62 | .245 | .244 | 1.066 | 1.195 |
| | 1939 | 1938 | 1929-37 | 1939 | 1938 | 1939 | 1938 |
| January 7 | 5.02 | 5.30 | 4.79 | .215 | .231 | 1.079 | 1.226 |
| January 14 | 6.12 | 5.40 | 5.17 | .176 | .226 | 1.081 | 1.222 |
| January 21 | 6.13 | 5.88 | 5.42 | .175 | .206 | 1.073 | 1.213 |
| January 28 | 6.65 | 6.39 | 5.52 | .158 | .187 | 1.056 | 1.021 |

## Egg and Poultry Exports and Imports

### Exports of Eggs and Poultry

| Kind | | December | | Jan. to Dec., Inc. | |
|---|---|---|---|---|---|
| | | 1938 | 1937 | 1938 | 1937 |
| Eggs in Shell | (doz.) | 201,314 | 254,119 | 2,092,419 | 2,376,421 |
| Eggs & Yolks, frozen, dried, or canned | (lbs.) | Not available | 27,910 | Not available | 216,621 |
| Live Poultry | (lbs.) | 8,334 | 6,593 | 78,979 | 74,770 |
| Dressed Poultry | (lbs.) | 142,871 | 117,601 | 1,759,654 | 1,615,423 |

### Imports of Eggs and Poultry

| Kind | | December 1938 | December 1937 | Jan. to Dec., Inc. 1938 | Jan. to Dec., Inc. 1937 |
|---|---|---|---|---|---|
| Eggs in Shell | (doz.) | 21,824 | 25,444 | 231,784 | 520,189 |
| Whole Eggs, dried | (lbs.) | 32,500 | 34,750 | 201,315 | 600,669 |
| Whole Eggs, frozen | (lbs.) | 0 | 144 | 938 | 25,556 |
| Yolks, Dried | (lbs.) | 23,800 | 254,450 | 341,019 | 5,426,358 |
| Yolks, Frozen | (lbs.) | 10,380 | 28,320 | 487,010 | 1,482,862 |
| Egg Albumen, dried | (lbs.) | 88,000 | 153,400 | 718,346 | 2,844,073 |
| Egg Albumen, frozen | (lbs.) | 0 | 0 | 30 | 0 |
| Live Poultry | (lbs.) | 226,981 | 490,238 | 1,421,463 | 4,841,276 |
| Dressed Poultry | (lbs.) | 24,886 | 295,628 | 524,850 | 703,364 |
| Poultry, Prepared | (lbs.) | 41,039 | 117,894 | 501,849 | 769,544 |

## Egg Breaking Operations

### Egg Breaking Operations During December 1938

| Commodity | | Quantities reported to date for Dec. 1938 | Same firm comparisons | | |
|---|---|---|---|---|---|
| | | | Dec. 1938 | Dec. 1937 | % change in 1938 |
| | | Pounds | Pounds | | |
| Whole Eggs (nothing added) | | 141,932 | 141,932 | 209,541 | –32.27 |
| Mixed Eggs (emulsions, also with sugar, salt, malt, etc. added) | | 45,211 | 45,211 | 47,388 | – 4.59 |
| Egg Whites (all descriptions) | | 58,550 | 58,550 | 78,249 | –25.17 |
| Egg Yolks Packed | Without salt, sugar, etc. | 49,015 | 49,015 | 59,186 | –17.18 |
| | With sugar | 5,010 | 5,010 | 7,230 | –30.71 |
| | With salt | 0 | 0 | 0 | – |
| | All yolk emulsions, including glycerine | 0 | 0 | 0 | – |
| Total—pounds | | 299,718 | 299,718 | 401,594 | –25.37 |
| Total—case egg equivalent | | 8,563 | 8,563 | 11,474 | – |
| Number of firms reporting | | 25 | 25 | 25 | |

## Poultry in Storage

### Storage Holdings of Frozen Poultry

| Kind | January 1 5-Year Avg. 1933-37 | January 1 1938 | December 1 1938 | January 1 1939 | % Change Jan '38-Jan. '39 |
|---|---|---|---|---|---|
| | (Thousand Pounds) | | | | |
| Broilers | 17,207 | 9,805 | 11,460 | 11,550 | +17.7 |
| Fryers | 15,242 | 10,852 | 12,534 | 15,080 | +38.9 |
| Roasters | 35,756 | 26,458 | 25,804 | 34,081 | +28.8 |
| Fowls | 21,140 | 24,244 | 18,502 | 23,767 | – 1.9 |
| Turkeys | 20,196 | 25,503 | 18,111 | 22,857 | –10.3 |
| Ducks | 3,865 | 5,747 | 9,276 | 6,735 | +17.1 |
| Miscellaneous | 19,079 | 20,891 | 22,401 | 25,118 | +20.2 |
| Total | 132,485 | 123,500 | 118,088 | 139,188 | +12.7 |

## Eggs in Storage

### Storage Holdings of Eggs

| Kind | January 1 5-Year Avg. 1933-37 | January 1 1938 | December 1 1938 | January 1 1939 | % Change Jan. '38-Jan. 39 |
|---|---|---|---|---|---|
| | (Thousands) | | | | |
| Shell Eggs (cases) | 631 | 831 | 1,439 | 300 | –63.9 |
| Frozen Eggs (lbs.) | 60,604 | 109,210 | 78,091 | 62,737 | –42.5 |
| Frozen Case* Equivalent (cases) | 1,732 | 3,120 | 2,231 | 1,792 | –42.5 |
| Total (cases) | 2,363 | 3,951 | 3,670 | 2,092 | –47.0 |

* Frozen eggs are converted on the basis of 35 lbs. to the case.

## Poultry Canning Operations

### Poultry Canning Operations During December 1938

| Commodity | Quantities reporting to date for Dec. 1938 | Quantities reporting for Nov. 1938 | Same firm comparisons | | |
|---|---|---|---|---|---|
| | | | Dec. 1938 | Dec. 1937 | % change in 1938 |
| | Pounds | Pounds | Pounds | | |
| Dressed Poultry Canned or Used in Canning | 3,619,066 | 2,458,846 | 3,617,599 | 2,501,194 | +44.63 |
| Number of firms reporting | 21 | 22 | 20 | | |

## Hatchery Operations

### Eggs Set, Chicks Hatched, and Chicks Booked by Commercial Hatcheries

| Geographic Section | No. of plants | Eggs set during December | | | Salable Chicks Hatched During December | | | Chicks Booked Jan. 1 for Jan. or later delivery | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1938 | 1937 | % chg. | 1938 | 1937 | % chg. | No. of plants | 1938 | 1937 | % chg. |
| | | Thousands | | | Thousands | | | | Thousands | | |
| N. Eng. | 21 | 1,810 | 1,370 | +32 | 1,044 | 676 | +54 | 20 | 2,388 | 1,804 | +32 |
| Mid. Atl. | 19 | 619 | 326 | +90 | 291 | 175 | +66 | 31 | 1,470 | 1,070 | +37 |
| S. Atl. | 23 | 622 | 399 | +56 | 346 | 221 | +57 | 20 | 941 | 551 | +71 |
| Central | 43 | 833 | 626 | +33 | 411 | 265 | +55 | 61 | 1,126 | 953 | +18 |
| TOTAL | 106 | 3,884 | 2,721 | +43 | 2,092 | 1,337 | +56 | 132 | 5,925 | 4,378 | +35 |

# RESULTS OF LAYING TESTS

The 16 standard tests rounded out the third month of their 1938-39 laying test run, with J. J. Warren's Rhode Island Reds at Passaic, N. J., still holding onto the lead. Guy A. Leader's Leghorns at Pennsylvania moved up into second position, however, just a fraction of a point ahead of Nelson's Leghorns at Texas. Kauder's Leghorns at Storrs pushed ahead during December, also, and threaten to overtake the leaders. Storrs and New York State pens are really better than their records show, in comparison with those of other tests, since they were a week late in starting.

### Mettler Wins for the Month

Thomas Mettler's Rhode Island Reds at Hunterdon, N. J., took high scoring honors for December and thereby moved all the way up into ninth position among all tests to January 1. A. E. Guinn's Leghorn hen at Georgia continues to occupy the number one position among individuals.

### Leader Ahead in Leghorns

Leaders to January 1 in the different breeds are Guy A. Leader, who tops the Leghorn division with his Pennsylvania pen; J. J. Warren, who's Rhode Island Reds at Passaic, N. J., set the pace for all standard pens; Eben Wood, who's New Hampshires and Barred Rocks at Maine both excel in their respective breeds; Oscar W. Holtzapple, who's White Rocks at Georgia continue to pound their way ahead of all other pens in their breed; Colonial Poultry Farm, who's White Wyandottes at Texas head their class.

### Texas Test Moves Ahead

The Lone Star State's Test had lowest mortality for December, surged into the lead in average test production to January 1, overtaking the Georgia Test. Hunterdon, N. J., advanced to third place.

## Twenty Highest Pens, All Breeds, All Tests, to January 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| J. J. Warren | Rhode Island Red | 1030 | 1037.30 | Passaic, N. J. |
| Guy A. Leader | White Leghorn | 986 | 976.85 | Pennsylvania |
| Nelson's Leghorn Breeding Farm | White Leg. | 948 | 976.15 | Texas |
| Kauder's Pedigreed Leghorns | White Leg. | 932 | 974.45 | Storrs |
| Clinard Hatchery | Rhode Island Red | 951 | 964.00 | Oklahoma |
| Erath Egg Farm | White Leghorn | 949 | 959.55 | Texas |
| Kauder's Pedigreed Leghorns | White Leg. | 952 | 959.40 | Georgia |
| Eben Wood | New Hampshire | 933 | 950.55 | Maine |
| Thomas Mettler | Rhode Island Red | 968 | 949.00 | Hunterdon, N. J. |
| Vans R. Otey | Rhode Island Red | 942 | 947.70 | Florida |
| A. E. Guinn | White Leghorn | 976 | 945.50 | Georgia |
| W. A. Seidel | White Leghorn | 907 | 940.85 | Texas |
| A. J. Williams | New Hampshire | 922 | 939.65 | Florida |
| Rochelle Hatchery | White Leghorn | 943 | 936.80 | Michigan |
| Cane Poultry Farm | Rhode Island Red | 925 | 936.25 | Hunterdon, N. J. |
| Booth Farms and Hatchery | White Leghorn | 914 | 933.50 | Florida |
| Foreman Poultry Farm | White Leghorn | 924 | 930.30 | Michigan |
| Dublin Poultry Farm | White Leghorn | 952 | 927.65 | Georgia |
| Booth Farms and Hatchery | White Leghorn | 893 | 924.00 | Oklahoma |
| Ralph W. Anderson | Rhode Island Red | 884 | 919.90 | Storrs |

## High Pen in Each Standard Test for December

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Thomas Mettler | Rhode Island Red | 362 | 369.70 | Hunterdon, N. J. |
| Foreman Poultry Farm | White Leghorn | 336 | 356.00 | Texas |
| J. J. Warren | Rhode Island Red | 342 | 355.25 | Passaic, N. J. |
| Guy A. Leader | White Leghorn | 341 | 353.30 | Storrs |
| Clinard Hatchery | Rhode Island Red | 333 | 350.10 | Oklahoma |
| A. E. Guinn | White Leghorn | 341 | 346.10 | Georgia |
| Ford's Riverbank Farm | Rhode Island Red | 334 | 344.40 | Michigan |
| Guy A. Leader | White Leghorn | 330 | 342.40 | Pennsylvania |
| J. J. Warren | Rhode Island Red | 316 | 339.55 | Rhode Island |
| A. J. Williams | New Hampshire | 329 | 338.30 | Florida |
| Lonnie Van Sant | Black Australorp | 314 | 329.35 | Arizona |
| Booth Farms and Hatchery | White Rock | 317 | 329.00 | Missouri |
| Eben Wood | New Hampshire | 315 | 326.85 | Maine |
| Content Farms | White Leghorn | 315 | 323.20 | Central New York |
| Clifton C. Hersey | Rhode Island Red | 278 | 292.60 | Western New York |
| E. B. Parmenter | Rhode Island Red | 266 | 275.30 | New York State |

## High Pen Each Breed to January 1—(92 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| J. J. Warren | Rhode Island Red | 1030 | 1037.30 | Passaic, N. J. |
| Guy A. Leader | White Leghorn | 986 | 976.85 | Pennsylvania |
| Eben Wood | New Hampshire | 933 | 950.55 | Maine |
| Eben Wood | Barred Rock | 887 | 861.95 | Maine |
| Colonial Poultry Farm | White Wyandotte | 824 | 840.05 | Texas |
| Oscar W. Holtzapple | White Rock | 835 | 808.90 | Georgia |
| Lonnie Van Sant | Black Australorp | 774 | 777.50 | Arizona |
| Ben G. Monroe | Ancona | 680 | 678.90 | Texas |
| Colonial Poultry Farm | White Minorca | 666 | 672.10 | Georgia |
| Lindstrom Poultry Farm | Buff Minorca | 642 | 615.65 | Missouri |
| Raymond Murphy | White Giant | 559 | 584.65 | Missouri |
| Henry F. Waitt | Silver Laced Wyandotte | 543 | 512.85 | Maine |
| S. E. Raymond | Lamona | 465 | 486.65 | Storrs |
| Harry L. Phillips | Columbian Rock | 452 | 454.15 | Missouri |
| Laclede Hatchery | Buff Orpington | 475 | 418.35 | Florida |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 406 | 412.30 | Maine |
| Blue Ribbon Farm | Rhode Island White | 390 | 382.95 | Texas |
| Cedarlaid Poultry Farm | Brown Leghorn | 402 | 322.15 | Florida |
| Missouri Valley Hatchery | Buff Leghorn | 401 | 321.90 | Maine |
| Hall Bros. Hatchery | Cross | 168 | 167.10 | New York State |

## High Pen in Each Standard Test to January 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| J. J. Warren | Rhode Island Red | 1030 | 1037.30 | Passaic, N. J. |
| Guy A. Leader | White Leghorn | 986 | 976.85 | Pennsylvania |
| Nelson's Leghorn Breeding Farm | White Leg. | 948 | 976.15 | Texas |
| Kauder's Pedigreed Leghorns | White Leg. | 932 | 974.45 | Storrs |
| Clinard Hatchery | Rhode Island Red | 951 | 964.00 | Oklahoma |
| Kauder's Pedigreed Leghorns | White Leg. | 952 | 959.40 | Georgia |
| Eben Wood | New Hampshire | 933 | 950.55 | Maine |
| Thomas Mettler | Rhode Island Red | 968 | 949.00 | Hunterdon, N. J. |
| Vans R. Otey | Rhode Island Red | 942 | 947.70 | Florida |
| Rochelle Hatchery | White Leghorn | 943 | 936.80 | Michigan |
| R. E. & F.H. Kendrick | Rhode Island Red | 880 | 911.20 | Rhode Island |
| Dryden Poultry Breeding Farm | Barred Rock | 878 | 845.40 | Central New York |
| Booth Farms | White Leghorn | 820 | 842.85 | Missouri |
| Colonial Poultry Farm | New Hampshire | 807 | 798.80 | Arizona |
| J. J. Warren | Rhode Island Red | 763 | 780.55 | Western New York |
| Harry A. Schnell | White Leghorn | 747 | 721.50 | New York State |

## High Hen in Each Standard Test for December

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Foreman Pl. Fm. & Dryden Pl. Fm. | Wh. Leg. | 31 | 34.10 | Texas |
| Sand Springs Home Farms | White Leghorn | 31 | 34.10 | Oklahoma |
| Thomas Mettler | Rhode Island Red | 31 | 34.05 | Hunterdon, N. J. |
| J. J. Warren | Rhode Island Red | 31 | 33.85 | Passaic, N. J. |
| Creighton Brothers | White Leghorn | 31 | 33.80 | Maine |
| Mishler–Liggett | Rhode Island Red | 30 | 32.40 | Arizona |
| Nesbit Poultry Farm | White Leghorn | 30 | 32.30 | Georgia |
| Colonial Poultry Farm | White Wyandotte | 30 | 31.90 | Rhode Island |
| Weber Duck Farm | Rhode Island Red | 29 | 31.90 | Michigan |
| R. R. Parks | Barred Rock | 29 | 31.90 | Pennsylvania |
| Ralph W. Anderson | Rhode Island Red | 30 | 31.75 | Storrs |
| Gulfkist Poultry Farm | White Leghorn | 29 | 31.65 | Florida |
| Egyptian Hatchery | Barred Rock | 29 | 31.25 | Missouri |
| Clifton C. Hersey | Rhode Island Red | 29 | 30.95 | Western New York |
| W. S. Hannah & Sons | White Leghorn | 29 | 30.75 | New York State |
| Baker Poultry Farm | White Leghorn | 29 | 30.20 | Central New York |

## High Hen Each Breed to January 1—(92 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| A. E. Guinn | White Leghorn | 88 | 95.00 | Georgia |
| Weber Duck Farm | Rhode Island Red | 86 | 93.85 | Michigan |
| Dryden Poultry Breeding Farm | Barred Rock | 86 | 90.20 | Missouri |
| Colonial Poultry Farm | New Hampshire | 86 | 89.05 | Arizona |
| Oscar W. Holtzapple | White Rock | 83 | 88.60 | Georgia |
| Lindstrom Poultry Farm | White Wyandotte | 80 | 86.40 | Georgia |
| E. S. McSweeny | Black Australorp | 77 | 80.85 | Arizona |
| Raymond Murphy | White Giant | 76 | 80.65 | Missouri |
| Missouri Valley Hatchery | Ancona | 64 | 67.95 | Oklahoma |
| Henry F. Waitt | Silver Laced Wyandotte | 63 | 67.85 | Maine |
| Colonial Poultry Farm | White Minorca | 66 | 66.80 | Georgia |
| S. E. Raymond | Lamona | 61 | 66.65 | Storrs |
| Harry L. Phillips | Columbian Rock | 70 | 65.05 | Missouri |
| Blue Ribbon Farms | Rhode Island White | 65 | 62.65 | Texas |
| Lindstrom Poultry Farm | Buff Minorca | 62 | 61.75 | Missouri |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 56 | 58.65 | Maine |
| Missouri Valley Hatchery | Buff Leghorn | 70 | 54.50 | Maine |
| Iowa Master Breeders | Buff Orpington | 56 | 53.65 | Missouri |
| Cedarlaid Poultry Farm | Brown Leghorn | 63 | 52.00 | Florida |
| Hall Bros. Hatchery | Cross | 43 | 45.85 | New York State |

## High Hen in Each Standard Test to January 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| A. E. Guinn | White Leghorn | 88 | 95.00 | Georgia |
| Weber Duck Farm | Rhode Island Red | 86 | 93.85 | Michigan |
| J. J. Warren | Rhode Island Red | 86 | 92.60 | Passaic, N. J. |
| W. A. Seidel | White Leghorn | 85 | 92.60 | Texas |
| Gulfkist Poultry Farm | White Leghorn | 85 | 91.65 | Florida |
| E. B. Parmenter | Rhode Island Red | 84 | 90.90 | Rhode Island |
| Dryden Poultry Breeding Farm | Barred Rock | 86 | 90.20 | Missouri |
| Guy A. Leader | White Leghorn | 85 | 89.20 | Pennsylvania |
| Colonial Poultry Farm | New Hampshire | 86 | 89.05 | Arizona |
| Kauder's Pedigreed Leghorn | White Leghorn | 81 | 87.70 | Storrs |
| Thomas Mettler | Rhode Island Red | 80 | 86.95 | Hunterdon, N. J. |
| Baker Poultry Farm | White Leghorn | 86 | 86.90 | Central New York |
| Redbird Farm | Rhode Island Red | 84 | 86.90 | Maine |
| Sand Springs Home Farms | White Leghorn | 81 | 85.55 | Oklahoma |
| Douglaston Manor Farm | Rhode Island Red | 80 | 84.15 | Western New York |
| J. J. Warren | Rhode Island Red | 77 | 77.65 | New York State |

## 20 Highest White Leghorn Pens in Country to January 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Guy A. Leader | 986 | 976.85 | Pennsylvania |
| Nelson's Leghorn Breeding Farm | 948 | 976.15 | Texas |
| Kauder's Pedigreed Leghorns | 932 | 974.45 | Storrs |
| Erath Egg Farm | 949 | 959.55 | Texas |
| Kauder's Pedigreed Leghorns | 952 | 959.40 | Georgia |
| A. E. Guinn | 976 | 945.50 | Georgia |
| W. A. Seidel | 907 | 940.85 | Texas |
| Rochelle Hatchery | 943 | 936.80 | Michigan |
| Booth Farms and Hatchery | 914 | 933.50 | Florida |
| Foreman Poultry Farm | 924 | 930.30 | Michigan |
| Dublin Poultry Farm | 952 | 927.65 | Georgia |
| Booth Farms and Hatchery | 893 | 924.00 | Oklahoma |
| W. A. Seidel | 888 | 917.80 | Texas |
| Woodlawn Farm | 871 | 917.45 | Texas |
| Kauder's Pedigreed Leghorns | 910 | 910.40 | Georgia |
| Booth Farms and Hatchery | 890 | 904.60 | Georgia |
| A. E. Guinn | 970 | 903.05 | Georgia |
| Gulfkist Poultry Farm | 900 | 896.70 | Florida |
| Kauder's Pedigreed Leghorns | 879 | 892.70 | Storrs |
| Roselawn Poultry Farms | 996 | 891.75 | Georgia |

## 20 Highest Rhode Island Red Pens in Country to January 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| J. J. Warren | 1030 | 1037.30 | Passaic, N. J. |
| Clinard Hatchery | 951 | 964.00 | Oklahoma |
| Thomas Mettler | 968 | 949.00 | Hunterdon, N. J. |
| Vans R. Otey | 942 | 947.70 | Florida |
| Cane Poultry Farm | 925 | 936.25 | Hunterdon, N. J. |
| Ralph W. Anderson | 884 | 919.90 | Storrs |
| Weber Duck Farm | 968 | 916.10 | Georgia |
| J. J. Warren | 874 | 914.70 | Storrs |
| Wegatepa Farms | 890 | 914.35 | Maine |
| R. E. & F. H. Kendrick | 880 | 911.20 | Rhode Island |
| Stanley V. Madison | 845 | 890.95 | Rhode Island |
| J. J. Warren | 880 | 885.55 | Storrs |
| Booth Farms and Hatchery | 892 | 883.95 | Oklahoma |
| D. I. Goodenough | 853 | 883.35 | Storrs |
| Ford's Riverbank Farm | 887 | 874.05 | Michigan |
| Ford's Riverbank Farm | 925 | 873.05 | Maine |
| Redbird Farm | 870 | 872.70 | Maine |
| Homestead Farm | 858 | 871.55 | Storrs |
| L. D. Bartholomew | 886 | 870.00 | Storrs |
| George A. Pearce | 898 | 860.40 | Hunterdon, N. J. |

## 20 Highest New Hampshire Pens in Country to January 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Eben Wood | 933 | 950.55 | Maine |
| A. J. Williams | 922 | 939.65 | Florida |
| Thomas J. Harrold | 960 | 917.90 | Georgia |
| A. J. Williams | 907 | 906.80 | Florida |
| Quimby School | 926 | 858.90 | Maine |
| Pine Mountain Valley Farms | 827 | 858.60 | Georgia |
| Steelman Poultry Farms | 843 | 852.70 | Storrs |
| Pine Top Poultry Farm | 804 | 845.55 | Maine |
| Hubbard Farms | 856 | 833.60 | Storrs |
| James H. Horne | 840 | 832.75 | Maine |
| W. H. Boulware | 828 | 824.25 | Florida |
| Fuzzydele Farms | 772 | 810.15 | Pennsylvania |
| Colonial Poultry Farms | 807 | 798.80 | Arizona |
| W. H. Boulware | 771 | 742.20 | Georgia |
| Pine Top Poultry Farm | 668 | 727.65 | Maine |
| S. C. Houck | 732 | 723.75 | Pennsylvania |
| Stroehlein Brothers | 721 | 712.35 | Passaic, N. J. |
| Pine Top Poultry Farm | 661 | 696.20 | Georgia |
| Wene Chick Farms | 747 | 694.00 | Georgia |
| Colonial Poultry Farms | 687 | 693.55 | Michigan |

## 20 Highest Barred Plymouth Rock Pens in Country to January 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Eben Wood | 887 | 861.95 | Maine |
| Dryden Poultry Breeding Farm | 878 | 845.40 | Central New York |
| Weber Duck Farm | 876 | 824.35 | Maine |
| Dryden Poultry Breeding Farm | 818 | 810.70 | Missouri |
| Weber Duck Farm | 822 | 788.00 | Georgia |
| Fuzzydele Farms | 774 | 756.65 | Storrs |
| R. C. E. Wallace | 751 | 749.15 | Oklahoma |
| Booth Farms and Hatchery | 833 | 743.30 | Florida |
| Woody Hatchery & Poultry Farm | 799 | 739.50 | Georgia |
| Riley Poultry Farm | 746 | 734.20 | Georgia |
| Riley Poultry Farm | 736 | 729.90 | Oklahoma |
| Weber Duck Farm | 738 | 720.80 | Florida |
| J. W. Schaible | 772 | 715.75 | Hunterdon, N. J. |
| Riley Poultry Farm | 753 | 708.35 | Michigan |
| Weber Duck Farm | 692 | 689.10 | Passaic, N. J. |
| Dryden Poultry Breeding Farm | 739 | 687.40 | Pennsylvania |
| David T. Cohen | 701 | 683.75 | Central New York |
| R. C. E. Wallace | 706 | 680.70 | Central New York |
| R. C. E. Wallace | 705 | 673.40 | Georgia |
| Dryden Poultry Breeding Farm | 719 | 672.70 | Storrs |

## 20 Highest White Plymouth Rock Pens in Country to January 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Oscar W. Holtzapple | 835 | 808.90 | Georgia |
| Booth Farms and Hatchery | 779 | 786.40 | Missouri |
| Homestead Farms | 784 | 738.30 | Pennsylvania |
| Tender Broiler Hatchery | 750 | 718.95 | Oklahoma |
| T. S. Townsley | 719 | 714.30 | Georgia |
| Oscar W. Holtzapple | 721 | 695.90 | Pennsylvania |
| Albert C. Lawton | 677 | 695.30 | Rhode Island |
| Kalerok Farm | 667 | 684.05 | Rhode Island |
| Lewis Farms | 678 | 650.75 | Rhode Island |
| Earl C. Dunham | 659 | 642.30 | Georgia |
| Riley Poultry Farm | 696 | 640.45 | Oklahoma |
| Kalerok Farm | 620 | 624.75 | Storrs |
| Albert C. Lawton | 608 | 603.35 | Storrs |
| E. A. Hirt | 605 | 596.45 | Storrs |
| Red Barn Poultry Farm | 597 | 580.00 | Storrs |
| Holtzapple Poultry Farm | 596 | 578.70 | Michigan |
| E. A. Hirt | 562 | 576.75 | Rhode Island |
| E. C. Wegener | 569 | 573.75 | Oklahoma |
| Clyde Cochran Hatchery | 629 | 573.70 | Oklahoma |
| E. A. Hirt | 586 | 573.00 | Maine |

## Average Production in Each Test to January 1

| Test | No. Birds | Eggs Per Bird | Points Per Bird | Per Cent Mortality for Dec. | Per Cent Mortality to Jan. 1 |
|---|---|---|---|---|---|
| Texas | 910 | 53.42 | 53.51 | .65 | 3.07 |
| Georgia | 1,300 | 54.76 | 51.66 | 2.46 | 5.92 |
| Hunterdon, New Jersey | 650 | 50.32 | 49.07 | 1.69 | 2.76 |
| Arizona | 260 | 49.68 | 48.45 | 1.92 | 3.84 |
| Florida | 1,248 | 48.13 | 45.71 | 2.24 | 4.08 |
| Storrs* | 1,300 | 46.54 | 45.68 | 1.46 | 2.53 |
| Passaic, New Jersey | 1,001 | 47.19 | 45.65 | 1.59 | 3.09 |
| Oklahoma | 650 | 46.23 | 44.83 | 2.30 | 3.84 |
| Pennsylvania | 1,131 | 45.21 | 44.11 | 1.59 | 2.29 |
| Michigan | 897 | 43.24 | 42.21 | 2.11 | 4.12 |
| Rhode Island | 650 | 41.41 | 41.93 | 2.00 | 4.00 |
| Western New York | 884 | 42.99 | 40.92 | .79 | 1.47 |
| Maine | 1,027 | 41.06 | 39.28 | 2.33 | 3.99 |
| Missouri | 780 | 35.89 | 36.04 | 1.92 | 4.35 |
| Central New York | 910 | 36.22 | 34.65 | .87 | 1.31 |
| New York State* | 1,222 | 32.61 | 30.59 | 1.96 | 4.25 |
| All Tests | 14,820 | 44.61 | 43.20 | 1.75 | 3.46 |

* One week behind other tests.

## High Pen, Each Breed, in Illinois Non-Standard Test to January 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Standard Hatchery | White Leghorn | 294 | 295.15 |
| Mapleside Poultry Farm | Barred Rock | 294 | 288.50 |
| Mrs. Curtis Manshak | White Rock | 282 | 272.35 |
| Corn Belt Hatchery | New Hampshire | 220 | 231.55 |
| Belldear Hatchery | White Wyandotte | 198 | 189.20 |
| Macomb Hatchery | Buff Orpington | 171 | 169.50 |
| Corn Belt Hatchery | Rhode Island Red | 147 | 142.50 |
| Wallace Moody | Buff Rock | 145 | 133.05 |
| H. R. Harnes | Brown Leghorn | 98 | 88.95 |

## 5 High Pens, R. O. P. Progeny Test, Paterson, N. J., to January 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Wegatepa Farms | Rhode Island Red | 984 | 966 |
| Oak Knoll Poultry Farm | White Leghorn | 895 | 852 |
| Stroehlein Brothers | White Leghorn | 834 | 836 |
| R. A. Hopkinson | White Leghorn | 806 | 819 |
| E. H. Bodine | White Leghorn | 851 | 800 |

## High Pen, Each Breed, Vineland, N. J., Hen Test to January 1

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Sebold Poultry Farm | White Leghorn | 365 | 394 | Two-Year |
| J. J. Warren | Rhode Island Red | 253 | 273 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 94 | 101 | Two-Year |
| Nedlar Farm | New Hampshire | 65 | 70 | Two-Year |
| J. A. Hanson | White Leghorn | 236 | 256 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leg. | 146 | 155 | Four-Year |
| Raymond Gardner | White Rocks | 22 | 23 | Four-Year |

## High Pen, Each Breed, Vineland, N. J., Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| J. J. Warren | Rhode Island Red | 4159 | 4494 | Two-Year |
| Kauder's Pedigreed Leghorns | White Leg. | 4115 | 4219 | Two-Year |
| Nedlar Farm | New Hampshire | 3697 | 3967 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 3137 | 3295 | Two-Year |
| J. A. Hanson | White Leghorn | 6140 | 6597 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leg. | 8810 | 9273 | Four-Year |
| Raymond Gardner | White Rock | 4974 | 5267 | Four-Year |

## High Pen, Each Breed in Pennsylvania Hen Test to January 1

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| John Schrope | White Leghorn | 569 | 616 | Two-Year |
| Fuzzydele Farms | New Hampshire | 389 | 422 | Two-Year |
| E. B. Parmenter | Rhode Island Red | 387 | 421 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 231 | 251 | Two-Year |
| A. M. Wolgemuth | White Leghorn | 287 | 311 | Three-Year |
| Fuzzydele Farms | Barred Rock | 251 | 274 | Three-Year |

## High Pen, Each Breed in Pennsylvania Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| J. A. Hanson | White Leghorn | 4136 | 4415 | Two-Year |
| E. B. Parmenter | Rhode Island Red | 3723 | 3907 | Two-Year |
| Fuzzydele Farms | New Hampshire | 3463 | 3610 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 3401 | 3578 | Two-Year |

* * *

## Among Our Contributors

**Dr. L. C. Norris** (p. 68) is one of the country's foremost poultry nutritionists. He graduated from Cornell University in 1920, received his doctor's degree in 1924, and continues as a professor in the poultry department there, doing research on poultry nutrition. His work in the past has dealt largely with the protein, vitamin and mineral requirements of poultry, and in recent years his work on vitamin G and manganese has attracted wide attention. Last year he received the Borden Award, carrying with it a gold medal and a cash prize of $1,000, from the Poultry Science Association for meritorious work in poultry nutrition. For diversion, he keeps a horse named Adalot, which possesses a local reputation as a jumper.

**H. E. Shackelton** (p. 90) is director of operations for the Pacific Egg Producers. As chairman of the consumer education committee of the National Poultry Producers Federation, the job of co-ordinating the activities of producers' groups in connection with the egg consumption promotion of last year through the food and drug chains fell on his shoulders.

**C. E. Lee** (p. 72) is vice-president and director of research for the Beacon Milling Company, Cayuga, N. Y. He is a native of Connecticut, graduating from Connecticut State College with honors in 1916. His first position was vo-ag instructor at Concord, Mass. He took up similar work in Connecticut in 1919. In 1920, he was appointed instructor at Cornell University, which position he held while taking graduate work, until his appointment as head of the poultry department of the N. Y. State Institute of Applied Agriculture at Farmingdale, L. I., N. Y., in 1923.

In 1927, Professor Lee joined t Beacon Milling Company as poultr specialist, became director of research in 1932, and was named vice-president in 1937. He is the author of "Practical Poultry Production for the Far East," textbook prepared for the Near East Foundation, "Popular Poultry Management," scientific articles and numerous popularly written poultry articles, which have appeared mainly in Poultry Item.

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## Information from Many Sources

In glancing through an issue of the National Poultry Digest, one may not realize the variety of sources from which the articles are being drawn. Over 75 publications that are issued with regular frequency are being examined each month for material suitable for the Digest. In the three issues which have been published thus far, articles have been drawn from the publications listed below. This list does not include experiment station bulletins, nor the statistical reports of the U. S. Department of Agriculture, but it does make a rather formidable lineup.

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*American Agriculturist*
*American Poultry Journal*
*American Produce Review*
*American Turkey Journal*
*Cornell Veterinarian*
*Eggs (London)*
*Eggsaminer*
*Everybodys Poultry Magazine*
*Farm Economics*
*Feathered World (London)*
*Featheredfax*
*Feedstuffs*
*Hatchery Tribune*
*International Baby Chick News*
*Journal of the American Veterinary Medical Association*
*Leghorn World*
*News for Farmer Cooperatives*
*N. J. Farm and Garden*
*New England Homestead*
*New England Poultryman*
*Nulaid News*
*Pacific Poultryman*
*Pacific Rural Press*
*Poultry Herald*
*Poultry Item*
*Poultry Science*
*Poultry Supply Dealer*
*Poultry Tribune*
*Poultry World (London)*
*San Joaquin Valley Poultryman*
*Scientific American*
*South African Poultry, Pigeon and Bird Magazine*
*Turkey World*
*U. S. Egg and Poultry Magazine*
*Washcoegg*
*Western Poultry Journal*
*Wooster Egg Auction News*
*World's Poultry Congress Bulletin*

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NATIONAL
# POULTRY DIGEST

Published monthly at Hanover, Pa., by Everybodys Poultry Magazine Pub. Co., Inc. C. N. Myers, pres.; Jas. T. Huston, vice-pres.; R. B. Alleman, sec.-treas.; Roland C. Hartman, editor; Thomas E. Moncrief, associate editor. Single copies, 25 cents. Subscriptions: $2.00 a year in the United States and the Pan-American postal union; $3.00 a year in Canada and foreign countries. Entered as second-class matter Jan. 20, 1939, at the post office at Hanover, Pa., under the act of March 3, 1879.

Vol. 1, No. 3 March, 1939

## How the Egg Crop is Used

By Gilbert Gusler

***Reprinted from American Poultry Journal***

POULTRYMEN hustling at the tasks of production probably reflect occasionally on the things they might learn about the way their eggs are used if they could follow them into the homes of consumers, or into public eating places, or food manufacturing establishments, or possibly into some other plant where eggs are used in one of the industrial arts.

Eggs travel many routes into consumption. Effort to increase the use of eggs, a question over which industry leaders have exercised their gray matter a great deal in recent days, has resulted in a more accurate picture than was previously available of the way the egg crop is now utilized.

The first use separation occurs at the farm. USDA estimates for the five years 1933-37 indicate that an average of about 2,915 million dozen chicken eggs were produced annually on farms. Of these, 647 million dozen were consumed in the farm household, 59.5 million dozen were used for farm hatching and 2,208 million dozen were sold for trading and into regular market channels. Of each 100 dozen produced, therefore, about 2 dozen were used for farm hatching, 22 dozen consumed by the farm family and 76 dozen were sold (including sales for hatching).

### Most Eggs Used in Shell Form

Most of the eggs are used in shell form, but increasing amounts are first processed into frozen eggs or egg products and small quantities are dried. Based on data available for 1935 the main forms of disappearance of the egg supply in that year were about as follows:

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INTENTIONAL 2ND EXPOSURE

| | Per Cent |
|---|---|
| Shell egg consumption (fresh and storage) | 83.35 |
| Liquid or frozen consumption | 6.19 |
| Dried egg consumption | 1.40 |
| Used for hatching | 4.09 |
| Loss or waste as rots, broken, etc. | 4.97 |
| Total | 100.00 |

### Fresh Eggs Used on the Table

Consumption on dining tables, public and private, either directly as eggs or indirectly in various forms of cooking and baking, is the predominant method of use of both fresh and storage shell eggs. Bakeries use less than 5 per cent. Small amounts—less than 1 per cent in each case—are used by ice cream makers, confectioners, and in various technical processes. Some inedible shell eggs are used in hog and fox foods, and in leather manufacture, but most of them are a complete loss.

About half of the frozen eggs are put up as whole eggs, about ¼ as whites and ¼ as plain, salt, sugar and glycerin yolks. Bakers are the principal users of mixed or whole frozen eggs, frozen whites and sugar and glycerin yolks. They are also extensive users of plain yolks. Mayonnaise and salad dressing manufacturers use practically all the salt yolks and a major share of the plain yolks. Noodle and macaroni manufacturers use somewhere between 10 and 25 per cent of the plain yolks as well as 5 to 10 per cent of the frozen mixed or whole eggs. The mixed frozen eggs, whites and plain and sugared yolks also are used in making ice cream, frozen custards, food beverages and beverage powders. Candy and marshmallow makers use frozen whites extensively.

The uses for dried yolks, the most important dried egg product, are about the same as for dried whole eggs. The prepared flour industry, which has grown rapidly in recent years, has been an increasing user. Even more extensive is the utilization by ice cream and frozen custard makers.

Largest users of dried whites are the confectioners, especially in making chocolate creams, marshmallows and candy bars. Next are the manufacturers of meringues, meringue powders, and icings. The dried albumen is preferred because of its excellent whipping quality, which is due to the process of fermenting before drying. Albumen also is used to some extent in prepared flours, baking powder, and fish food.

Dried whites are used in a number of technical processes, as in the finishing of leather, bookbinding, photographic films, and in preparing textiles, pharmaceuticals, paper, and art paints and colors. However, the total volume used in these processes is small, the quality required is lower for some uses than in albumen for human food, and the demand appears to be decreasing, because of competition from much cheaper casein and serum or blood albumen. Moreover, some manufacturers claim that these other products give better results than egg albumen.

Consumption of frozen egg products has increased rapidly in recent years, due to improved refrigeration facilities permitting relatively small bakers to hold such eggs and the practice of making daily deliveries in small cans to users who do not have refrigeration. Most of this growth was by displacement of shell eggs, although part of it was at the expense of dried eggs, the use of which has shown little net change in the last 15 years. It has been estimated that more than 80 per cent of the dried eggs consumed in 1936 were in products in which frozen or shell eggs could not be used. Demand for both frozen and dried yolks is much broader than for whites.

It is obvious from a survey of the uses of eggs that increases in consumption must come in the form of human food rather than in non-food utilization. Other studies have indicated that human consumption is greatly dependent on the income of consumers. The greatest need is either an increase in the number of well-to-do consumers, or some means of making eggs available at lower cost.

Dried whole eggs produced from eggs with exterior defects but good interior quality are cheaper than good shell eggs because of lower transportation and storage charges and, in some cases, lower original cost. Hence, it has been suggested that consumption by lower income groups, which now use fresh eggs sparingly, could be expanded by retailing dried whole eggs in small packages.

With reference to bakers and other food manufacturing industries, the problem of increasing consumption probably involves education of consumers to demand products which contain eggs rather than substitutes. This also is partly a question of the consumer's ability to pay.

Utilization of egg products in technical processes offers little promise to poultrymen because of the minor amounts for which there is any known outlets, the poor qualities which can be used, and the low prices at which they must be sold to meet competition.

The loss or waste of about 4 per cent of the egg crop is one "use" over which producers have much control. Although it reduces the supply and, to that extent, raises prices on the good eggs, nevertheless, it is an economic drain. Most of the loss probably falls on those least able to afford it.

## Pheasant-Chicken Hybrid

After five years of experiment, the members of the Science Department of Avon Old Farms, a college preparatory school at Avon, Conn., have finally succeeded in crossing a pheasant cock and a game hen. So far as is known, this is the first time this has been done. The boys found that the secret lies in mating the birds in the fall rather than in the spring.

The hybrid shows many chicken and pheasant characteristics. Both sexes seem to possess the red eye ring of the male pheasant. A ring is present around the neck of the birds similar to that of the Ringneck male but black in color instead of white. Plumage is markedly chicken in banding and color.

The boys who successfully conducted this experiment are 12 and 14 years old and are members of the first two terms of the school.

—Scientific American, February, 1939.

THE Chinese patient wants a live chicken tied to the foot of his hospital bed, believing the human soul will jump, at death, into the chicken's body and not be lost from life.

—Kathryn Bele Niles, U. S. Egg and Poultry Magazine, March, 1939.

# Egg and Poultry Cooperatives

By S. D. Sanders

Farm Credit Administration

*Condensed from News for Farmer Cooperatives*

COOPERATIVE marketing of eggs and poultry in the United States has developed rather slowly compared with other farm products and the status of other farmer cooperatives. This tardiness apparently has been due more to unsuccessful attempts than to an actual dearth of effort. The number of cooperative egg and poultry associations which have gone out of business exceeds the number now operating. However, there has been a continual growth and development, most of which has taken place in two sections of the country, the West and the Northeast.

Eggs and poultry are one of the chief sources of farm income, the gross income being exceeded only by that from livestock and by dairy products and usually is about equal to that from either grains or cotton and cottonseed. For the 10-year period 1926-35, inclusive, it constituted 10.4 per cent of the total gross income from all crops and livestock.

## Only 194 Going Poultry Co-ops

Out of a total of 8,300 cooperative marketing associations in the United States in 1937-38, only 194, or 2.3 per cent, were egg and poultry cooperatives. In contrast to this number, there were more than 2,600 grain, 2,300 dairy, 1,100 fruit and vegetable, 1,000 livestock, and 400 cotton associations. Out of 2,500,000 producers in cooperative marketing associations, 106,000 or 4.2 per cent, were in poultry cooperatives. Of the total business of farmers' marketing associations, 91 million dollars, or 4.4 per cent, was carried on by poultry cooperatives.

In addition to the 194 out-and-out egg and poultry cooperatives, there were, in 1936, more than 500 other associations, widely scattered, engaged in marketing and purchasing eggs or poultry or both. These associations handled nearly a third of the poultry and turkeys marketed cooperatively and a considerable volume of the eggs.

The principal reason, as will be shown later, that there are relatively few cooperative egg and poultry associations in the United States is that poultry production is a side-line business on most farms rather than the major farm enterprise.

## Most Successful on Coasts

Associations set up to market eggs and poultry have been most successful in the Pacific Coast States and in the Northeastern States. These are the two areas of heaviest commercial or specialized egg and poultry production. In 1929, 10.4 per cent of the farms in the Pacific Coast States and about 8 per cent of the farms in the Northeastern States were classed as poultry farms. In the 11 Pacific Coast and Mountain States are located 38 per cent of the egg, poultry, and turkey cooperatives; these associations have 48 per cent of the membership and do 70 per cent of the business of all egg and poultry cooperatives.

The 13 Northeastern States have 22 per cent of the associations, 23 per cent of the membership, and 17 per cent of the business. This leaves for the 22 remaining States of the Midwest, the South, and the Southwest 40 per cent of the total number of associations but only 29 per cent of the membership and 13 per cent of the business.

It may be of interest to discuss briefly the historical development of our egg and poultry cooperatives.

## The Egg Circles

First, about 1913, came the egg circles. These were patterned after similar ones in Denmark and Canada; they were distinctly local in character and limited in potential benefits and in services actually rendered. The two chief purposes of this early form of egg-marketing association were to improve the quality by the production of infertile eggs, collected and shipped frequently, and to market these eggs collectively and more directly to the consumer.

Upon joining the earlier of these circles, the members were furnished with a rubber stamp and ink pad. These stamps were made to fit over the large end of the egg. Each stamp, in addition to bearing in a circle the trade mark, bore numbers designating the county, the egg circle, and the recorded number of the member.

Enough farm women were usually required for a circle to enable it to make two shipments a week of at least one case per shipment. Little attempt was made to grade the eggs as they were sold on a "case count" basis. Effort was made to sell the product directly to retailers in the larger cities.

Because of the small volume of eggs necessary for their operation and their adaptability to farm-flock production conditions of the Midwest and the Southwest as a method of collective marketing, by 1918 there were a large number of these circles. They encouraged at first the more careful handling of eggs, improved methods of marketing, and provided a forerunner for the later, truly cooperative pooling associations. These pooling associations, in some instances, developed from the larger egg circles, a few of which later had regular officers, a hired manager, and a central plant for packing.

The benefits derived from this method of collective marketing were usually slight. Egg buyers would pay a few cents a dozen more for eggs when scarce and in order to obtain larger lots; when eggs were plentiful it was extremely difficult to obtain buyers. The buyers did not pay according to quality. This nullified one of the two basic purposes of the circles. Small volume, lack of capital, inexperienced and poor management, and lack of member support made the popularity of this type of egg-marketing associations short-lived. By 1923, only a few of these egg circles as such were still active.

## Pooling Eggs

Next, about 1917, came the development of the pool type of association in the West which is still predominant in the Pacific Coast and Mountain States. Attempts were made to set up associations in California as early as 1905 but the oldest association of any degree of permanence was organized in 1913.

In California egg production early reached a high degree of specialized production. Large flocks, usually of

Condensed from "Co-op Poultry Experiences" in News For Farmer Cooperatives, February, 1939. Farm Credit Administration, Washington, D. C.

one breed, became common and large volumes of eggs of high quality and fairly uniform size and color were produced. This type of production naturally resulted in the development of cooperative pooling associations to market the surplus in the Eastern markets. As a result, beginning in 1916 a number of associations of the pool type were organized in California, Washington, Oregon, Idaho, Colorado, and Utah. Most of these associations started in a small way, are still operating, and have expanded in volume, area of operation, and services rendered. These have frequently been pointed out justifiably as examples of outstanding successes in the cooperative marketing of eggs and, to a lesser extent, poultry.

### West's Problems Different

The next important development was the attempted adoption of the large western pool type of association by midwestern farm-flock and eastern commercial producers. This phase of development results largely in failure and disappointment. Concentrated volume and the distinct marketing problem of moving large quantities from a surplus area to deficit areas existing in the Far West did not prevail farther east, and only a few of the large number of associations of this type set up east of the Rockies survived for more than a few years.

### Egg Auctions In East

In 1930, the most important recent development in the cooperative marketing of poultry products was initiated. This was the formation of a country-point egg and poultry auction association. This type of association has proved so successful and popular that at the present time there are 25 of these associations operating in the northeastern part of the United States. Only one association of this type, the first one organized, has ceased to operate. However, several associations formed to use the auction method of sale have been compelled to depart in whole or in part from this method.

Apparently these local auction associations are at present the best solution to the problem of marketing poultry products in the heavy eastern production areas adjacent to large consuming centers. This type of association is now operating as far west as Chicago, Ill., and as far south as Knoxville, Tenn. It appears, however, to be ill-adapted to the heavy surplus producing areas which are far removed from the large metropolitan consuming centers.

### Limited Production

It seems to me that there have been three general causes for the lack of greater development of cooperative marketing associations for poultry products. One is the nation-wide nature of poultry production as a side-line farm enterprise. A second is the attempt to set up large associations at the outset without developing the necessary understanding on the part of the membership; and a third, the attempt to copy specific legal and operating set-ups which, while adaptable to some situations, were not adaptable in areas where conditions were different. These three general causes will be discussed in the order mentioned.

Poultry is raised in every county, town, and township in the United States. It is raised on about 9 out of every 10 farms. In 1935, more than 6,000,000 out of our total of 6,800,000 farmers raised poultry. It is usually a minor and side-line enterprise used by the farmer's wife as a source of pin and grocery money and constitutes a major business on only 3 per cent of

our farms. Further, since the amount handled by the farmer's wife is small and very seasonal, she does not bother about marketing through a cooperative association.

### Must Start Small

One of the mistakes commonly made by those who have been instrumental in the setting up of poultry cooperatives has been that of organizing large associations at the outset. No successful existing egg and poultry cooperative association on record was started on a large scale. The successful ones have grown up from small local operations. Small associations, with a compact membership and local in operation, should usually be organized first. Such associations will not need a large initial volume of products, much capital, costly facilities, or high-salaried personnel. Neither are they likely to incur undue antagonism or competition. Only when these small associations have been able to do their local job well should they attempt to expand.

Small associations with a membership concentrated within a small area are much more likely to operate efficiently, to be less subject to member defection, and to carry on than are associations covering wider areas, with more scattered and vulnerable membership. Too extensive operations often increase costs, opposition, and competition out of proportion to the volume gains from the enlarged and often unwieldy area of operations. The usual result of the initial setting up of large cooperatives is incurring per-unit costs so high that the association is put in such a disadvantageous position competitively that the anticipated and necessary volume for low per-unit costs never arrives.

One of the commonest mistakes in the setting up of poultry and egg cooperatives has been that of forming new associations as exact duplicates of other successful associations. To attempt to transplant a type of association too far from its native conditions of operation is likely to result in failure. This happened when the pool type of association of the West was adopted for the very different conditions of the Midwest and the East but not adapted to the differences.

If there is a close similarity between the conditions in the area of a proposed association and that of a successfully operating association, much the same type of organization may be advisable. This situation exists in the northeastern states where production and marketing conditions are quite similar for all sections and the auction associations have been formed advisedly as close copies of those operating elsewhere in the area.

While the number of associations handling poultry products is not impressive, there are some outstanding successes in this field. We can point to accomplishments not surpassed by cooperatives in any other field. One egg and poultry cooperative in 1937 had nearly 24,000 members and did a total business in excess of 20 million dollars. A turkey-marketing association in 1936 marketed 16 million pounds of turkeys from producers in 14 Western States. These and other associations are not the result of a few years of effort; they were not built without a struggle or without disappointments and sacrifices on the part of those who pioneered them.

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❧ A TURKEY gobbler, owned by Mrs. Jannie Spencer, Lake Landing, N. C., hatched 18 turkey eggs, according to a news report.

# The Value of Eggs as a Food

By Irene Hoffman

17-Year Old High School Student, Bucks County, Pa.

***First Prize Essay in a Contest Conducted by the Egg Promotional Committee of Pennsylvania***

THE world recognizes the importance of eggs in the diet. Nutritionists devote "chapters on chapters" of their books to the food value of eggs. Compiling recipes on egg cookery, a French chef listed over 1,000 egg dishes. There are few, if any, American farmers who own no chickens. What restaurant does not include "ham and eggs" on the menu?

It is no wonder that the egg is so richly nutritious since the yolk and the white are the potential chick and its first food. Stored within the shell are necessities to human life—protein, phosphorus, iron, calcium, and vitamins A, B, D, and G. Eggs in the daily bill of fare point to health and protection from disease.

Due to the presence of a considerable amount of protein, eggs are body-builders. How important protein really is was shown in the World War. The poorer classes of Berlin were forced to reduce their protein foods to one-half the usual amount. As a result, weakness, low blood pressure, and dropsy around the feet and ankles became common. Protein, needed especially by growing children, is also necessary for the repair of broken-down tissues in adults.

The mineral salts in eggs are just as requisite as protein. Brain and nerve cells demand phosphorus, haemoglobin in the red blood corpuscles needs iron, and bones and teeth require calcium. Containing these three elements, egg yolks are not only essentials for internal bodily health; they are an aid toward keener minds, general attractiveness, and lustrous teeth.

Four vitamins are known to be in eggs. Growth and vitality are promoted by vitamin A, which prevents xerophthalmia, a malady of the eye. Deficiency of vitamin B encourages beriberi, a paralysis of the limbs. Besides protecting children from rickets, vitamin D is important to pregnant or nursing mothers. Lack of vitamin G causes pellegra; an abundance of it advances well-being at all ages. All four vitamins should be included in one's daily food; an egg contains them all.

In addition to being nourishing, the egg is a boon to cooks for its uses are innumerable. Because eggs thicken milk in the presence of heat, custard making is made possible. Simply prepared, eggs may be served fried, scrambled, hard-boiled, soft-boiled, or in an omelet. Batters and doughs can be enriched by the yolks and whites, which also assist in the leavening process. Eggnog, puddings, cookies, cakes, pies, and ice cream, America's favorite dessert, are given consistency, flavor, and color by "hen fruit."

Modern farmers compete in cleanliness and freshness of eggs to secure markets, for standards of quality are high. Today the housewife may buy eggs of whatever grade she desires at

whatever price may suit her pocketbook.

Considering the egg's great value as a food, its many practical uses in cookery, and its comparatively low price for its rich content, you realize that no one should omit the eggs from his, or her, diet. Eat your way to health—eat eggs!

## *Get Heavier Pullet Eggs*

Pullets going into production generally lay small eggs. Because such eggs are small, they grade lower and bring lower prices.

By using select males—at the National Agricultural Research Center, Beltsville, Md.—Dr. C. W. Knox and M. W. Olsen of the Bureau of Animal Industry in four years have developed White Leghorn pullets which start laying large eggs so much sooner that the December average egg weight has jumped from 21.9 ounces per dozen to 24.6 ounces per dozen. There was no culling of pullets during the test.

As a result, the average egg weight for the entire first year of production went from 23.2 ounces per dozen to 24.8 ounces per dozen. Twenty-four ounces per dozen is the minimum weight for large eggs in the top United States grades.

Males used in the breeding pens were selected on the basis of their sisters' average egg weight the first two years of the test, and during the past two years were selected on both their sisters' and daughters' average egg weight.

Average egg weight made steady gains as shown by the December averages from year to year. The eggs averaged 21.9 ounces for December of 1934, the year the test began. For the same month in 1935, before the breeding work had time to produce results, average weight dropped to 21.2 ounces per dozen. But in December, 1936, it jumped to 22.9 ounces and then to 23.2 ounces in 1937 and 24.6 for December, 1938.

—The American Produce Review, March 1, 1939.

## *Year Around Feeding of Laying Mash Pays*

It pays to feed laying mash the year around. In a summary of Illinois poultry flocks keeping records, M. L. Mosher and H. C. M. Case report in Illinois Bulletin 444 that hens fed a laying mash the year around produced an average of 112 eggs per hen; the eggs were valued at $2.11 per hen, and there was a total return of $238 per hundred dollars invested in the poultry flock.

By way of contrast, the hens on farms where mash was fed only part of the year produced only 86 eggs per hen, valued at $1.48, and a total return of $185 was earned for each hundred dollars invested.

On a small number of farms where no mash was fed, egg production averaged 79 eggs per year, valued at $1.27, and the return for the flock was only $156 for each hundred dollars invested.

# Turkey and Chicken Brooding With Soil Heating Cable

By Paul Ford
Pacific Gas and Elecrtic Co.

*Reprinted from Agricultural Engineering*

HEATING of soil for brooding is not new, for since commercial brooding of turkeys was introduced by Dr. Cline of Nevada, several other veteran turkey men have put into use many types of brooders. Some of these are heated by the so-called pit method, a length of 6-in. pipe being placed in the ground directly under the brooding compartment from a pit using wood or coal for fuel. However, this method has not been satisfactory due to the fact that the heat was not controlled to any definite degree. Suffice it to say that this type was the father of the idea which I used in installing soil heating cable for turkey and chicken brooding.

In the spring of 1935 I hatched 250 poults, put them into a small soil heat brooder, and watched the results with a bit of apprehension. From my observations I could soon tell that the poults were responding to this brooding method far beyond my highest hopes. I called in several prominent turkey men and asked them their honest opinion. They were unanimous in saying that we really had something. After the first week of introduction the orders for soil heating cable ran up into thousands of feet, and soil heat brooding was considered by turkey men as a dream of an ideal brooder come true.

### Construction and Operation

An ordinary width of tar paper is placed on the ground or concrete, and covered with an inch of coarse sand. On this the cable is laid with 3 or 4-in. spacing. About 2 in. of coarse sand is placed over the cable. A thermostat bulb is located directly between the cables, just underneath the surface of the sand, so as to get the temperature as near the reading on the indicator of the thermostat as possible, this being from 100 to 105 F. (degrees Fahrenheit) for the first week and gradually reduced. This bulb must be placed in a separate compartment to prevent poults from sitting on it and cutting off the power. This is a special soil heat thermostat which has been used in most installations. However, we are now working on the use of a wafer-type thermostat, as it seems to give a more accurate adjustment.

Burlap is laid over the sand to prevent the poults from scratching down to the cables. The cables being spaced 3 or 4 in. apart, using 8 cables in width gives approximately 32 in. in width of heated area, with the length depending on the number of units desired. The cable is cut in lengths of 120 ft. for 220 volts, or 60 ft. for 110 volts, with each thermostat carrying 25 Amperes.

Brooding compartments are then placed over the heated areas. These compartments are constructed out of 1 by 12 inch material set on edge. Each measures 3 by 6 feet and is usually built into sections of four. We confine 80 to 100 poults in each compartment for two or three weeks, depending on the weather.

American Society of Agricultural Engineers, St. Joseph, Mich.
(Agricultural Engineering, February, 1939)

Usually the heated section only is covered and a burlap curtain dropped to within an inch or so of the floor, between it and the unheated section. The covering can be boards, canvas, or tar paper.

We also place a 60-watt bulb in each compartment for light and as a source of overhead heat.

### Provides a Reserve Heat

This type of brooder has advantages in the ease of moving it about from place to place, as is the custom of many turkey men, and in being adaptable to any type of house or open-shed brooding. It provides a reserve heat built up in the soil, which will last from 3 to 8 hr., depending on the weather. The source of heat is controlled thermostatically and gives off no odors, and there is no danger of fire at any time. The brooding compartment is kept dry, which tends to keep down disease. We have had no serious outbreaks of any disease in this type of brooder.

Turkey men, where brooding costs were kept, report that 1 cent per bird covered their brooding costs.

This type of brooder requires attention, the same as other types. However, in my opinion, based on observation throughout my territory, it comes nearer to being foolproof than any other brooder yet designed.

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## *Ideas About Brooding Temperatures Exaggerated*

So many people have an exaggerated idea of how warm chicks must be kept, and right there is laid the foundation for cannibalism, low vitality, poor feathering, and other ailments that the poor pullet is never able to live down. A good warm hover with gentle heat like mother hen gives the heat they need, and when out of it they are much better off in cool fresh air; they feather better, can wean from heat earlier and their growth is more on a sane, normal order, for excess heat forces growth in an abnormal manner sometimes, for the reason that little food is needed for heating the body, and all of it forces growth and sex maturity instead of a portion of it being used to maintain the proper body temperature.

—Mrs. H. C. Kleinsmith, The Pacific Poultryman, March, 1939.

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THE SINO-JAPANESE war had a decided influence on last year's egg deal. That war has resulted in a sharp curtailment of importations from China. A Japanese victory in China is fraught with extremely dangerous potentialities for us, in that their genius for organization will very probably result in a thorough organization of the poultry industry, and a consequent flood of eggs and egg products from this source.

—From Address of Carl P. Paulson at the Annual Meeting of Poultry Producers of Central California, Feb. 14, 1939.

# Worcester Storekeepers Display Eggs

By Jules Kroeck
Massachusetts Department of Agriculture

*Condensed from New England Poultryman*

IT may be truly said that many storekeepers do not merchandise their eggs; they only carry them as an accommodation. This is not so with some of them, because an appreciable number entered the store window display contest held in conjunction with the Northeastern Egg Show sponsored by the Massachusetts Federation of Poultry Associations at Worcester, January 4, 5, and 6. The egg show was a part of the annual agricultural gatherings known as the Union Agricultural Meetings, at which the various farm commodity groups get together to discuss their respective problems.

Egg shows in the past have had classes for the producers, cooperatives, 4-H clubs and vocational agricultural students and dealers in which jobbers, wholesalers, and packers competed. No competitive egg show has ever included classes for storekeepers, at least, according to the knowledge of the writer, which omission was unfortunate, because there is a definite place for these storekeepers in egg shows. Competition of this sort brings the producers, dealers, and storekeepers closer together, which results in a better understanding of a common problem, namely to increase the consumption of eggs.

### Storekeepers Are Interested

The experiences gained in Worcester indicated that storekeepers are interested in entering such contests and in gaining any advantages which will increase their sales of eggs.

While there were 60 applications entered in the contest, a few dropped out. Photographs of the best displays were taken, and the New England Fresh Egg Institute is planning to have a leaflet printed of these displays. The leaflet will then be used to illustrate what in the minds of the judges is a creditable exhibit. These leaflets will be distributed to storekeepers. The Institute also did effective work in supplying the storekeepers with "Eat More Eggs" posters.

Advantage was taken of the state egg inspectors who talked about the contest to storekeepers while making fresh egg inspections. The heads of the chains were also contacted. In two instances, the heads of the egg departments went to Worcester from Boston to help store managers with their exhibits. Store managers need some encouragement as well as suggestions on how to display merchandise effectively.

### 56 Stores Sell More Eggs

According to reports of E. J. Carver, one of the egg inspectors of the Massachusetts Department of Agriculture, who interviewed 63 storekeepers following the show, 56 stores showed an actual increase in the sale of fresh eggs ranging from 25 per cent to 300 per cent. Seven stores showed a small increase or no appreciable increase due to a lack of individual effort, a poor display or no display at all.

New England Poultryman Publishing Company, 4 Park St., Boston, Mass.
(New England Poultryman, January and February, 1939)

Important consideration must be given to the fact that market prices dropped during that period. From a psychological standpoint, however, the contest could not have occurred at a more favorable time. Prices were satisfactory to the consumer, and storekeepers had ample supplies to satisfy a stimulated consumer demand. Quality, of course, at that time of year was excellent.

The general opinion of the storekeepers is that once consumer interest is aroused through educational programs and advertising programs coming from different sources, the appeal and wholesomeness of the fresh egg itself will be sustained and will continue in increased sales. So far as could be ascertained, a general feeling of good-will pervades producers, retailers, and, best of all, consumers as a result of the show.

## *Test Your Poultry Knowledge*

These are a few of the questions asked in a poultry quiz contest between practical poultrymen and representatives of firms allied with the poultry industry at the meeting of the Pennsylvania State Poultry Association at Harrisburg, Pa., Jan. 18, 1939. Test your knowledge by checking the proper answer, and then turn to the correct answers on page 154.

1. Does the per cent relative humidity in the brooding pen affect the number of days to sexual maturity? ☐ **Yes.** ☐ **No.**
2. Will certain types of heating elements in electric brooders delay sexual maturity? ☐ **Yes.** ☐ **No.**
3. Does floor insulation under an electric brooder help to prevent excessive dampness? ☐ **Yes.** ☐ **No.**
4. Does the feeding of whole oats have any practical effect on cannibalism control? ☐ **Yes.** ☐ **No.**
5. Is sexing harmful to health and production? ☐ **Yes.** ☐ **No.**
6. Does the protein content of the ration have a relation to the rate of growth? ☐ **Yes.** ☐ **No.**
7. Does jarring eggs affect their fertility? ☐ **Yes.** ☐ **No.**
8. Do chicks of heavier weight at hatching usually remain heavier throughout life? ☐ **Yes.** ☐ **No.**
9. Is it more important to turn incubating eggs during the latter half of the incubation period than it is during the first half? ☐ **Yes.** ☐ **No.**
10. Does the embryo chick always start its growth before an egg is placed in an incubator? ☐ **Yes.** ☐ **No.**

# The Shift in the Broiler Industry

By T. B. Charles
University of New Hampshire

*Condensed from New England Homestead*

GOING! Going! Gone! Broilers at $1.15 a pound. In the spring of 1921 that was the top price received on the New York market for New Hampshire broilers. Stir up your memory a little and you will recall also that it was not until 1922 that the antirachitic value of cod liver oil was discovered. Thus, year-round rearing did not come into the picture commercially until 1923. By the spring of 1928 the top New York price on broilers had dropped to fifty-five cents per pound, and I am not going to tell you what they are bringing today.

New Hampshire as a winter broiler producing state stepped into the foreground from this time (1923) until in 1926, when a survey was made of the New York broiler situation and it was found that during November and December this state shipped into that market 53 per cent of the live broilers by express.

This great development of the winter broiler business in New Hampshire was due to many factors, but no doubt the principal ones were, first, good native birds which made rapid growth and feathered early. (This was the foundation of the now world famous New Hampshires). Second, due to the establishment of the Pullorum eradication program that was started in this state in 1918, it was possible to secure a plentiful supply of chicks that would live well. Third, the initiative and alertness of our poultrymen to cash in on high broiler prices. Fourth, the discovery by Hart, Halpin and Steenbock of the use of cod liver oil to control rickets in growing chicks. Fifth, to a period of years with relative high broiler prices, and sixth, last but not least, to the "push" of "Red" Richardson, head of the Poultry Department, University of New Hampshire, 1918-28.

### Competing Areas

What about competing areas? Let us consider the year 1925. There were these four other major sections competing with New Hampshire in broiler production: (1) Connecticut, Vermont, Massachusetts, Rhode Island and Maine, shipping about as much, as a unit, as New Hampshire. (2) New York, Pennsylvania, Virginia, Maryland, Delaware and New Jersey, shipping less than New Hampshire. (3) Kansas, Missouri, Nebraska, Iowa, Illinois, Indiana, Minnesota, Oklahoma, West Virginia, South Dakota and Wisconsin shipping together about three times the production of New Hampshire, and (4) Kentucky, Tennessee, Texas, Arkansas, Alabama, Ohio, North Carolina, Mississippi shipping as a group about one-half as much as New Hampshire.

In 1934 a study was made by the Poultry Section of the AAA which revealed that the principal broiler producing states were Delaware, Virginia, Maryland, Connecticut, New York, California, Georgia, Pennsylvania, Indiana and Arkansas.

From "The Why and Wherefore," New England Homestead, Feb. 11, 1939
New England Homestead Company, 29 Worthington St., Springfield, Mass.

With the exception of Georgia, all of the above states were also important factors in the broiler industry as early as 1925, as previously indicated.

### Is There a Broiler Industry?

The survey made above indicates that in that year (1934) broilers constituted about three per cent of the total number of chickens raised, roughly about 16,500,000.

Broilers will no doubt always be valuable sources of income for the poultry industry and where the demand exists and prices are favorable, there will also be developed a specialized broiler industry.

According to this same study above mentioned, receipts of live broilers at New York for June 1, 1934, to May 31, 1935, show receipts from states to rank as follows in importance: 1. Delaware; 2. Massachusetts; 3. Connecticut; 4. New Hampshire; 5. Rhode Island; 6. Maryland; 7. New York. In terms of volume in New York during this period, the New England area and the Del-Mar-Va area were of equal importance as shipping areas.

If figures for 1938 were available, they might show a slightly different picture, because many of the broilers that were formerly shipped by express and later by truck to New York have been diverted to New England markets, or dressed nearer the point of production, at least, so far as the northern section is concerned.

The shift in the commercial broiler producing area has shifted southward for many reasons. First, due, to cheaper growing conditions; second, due to milder winter temperatures; third, cheaper building can thus be used successfully; fourth, chicks can be allowed to range outside; fifth, lower labor and overhead costs due to above conditions; sixth, lower fuel cost for brooding.

That the commercialized broiler business is not restricted to just one area, reference to the states listed above will show that it is spread from coast to coast. A recent article stated that in a small area of Arkansas this last year a $4,000,000 broiler business had developed.

It so happened that the type of chick and hatching eggs that had made broiler growing in New Hampshire a success in the early days was the type that made money for others. Thus, it was only natural that our poultrymen could readily turn from broiler production to furnishing chicks and hatching eggs for other sections where the broiler industry was becoming commercialized.

In some quarters there seems to be a fear that the enormous demand for cross-bred hatching eggs will cause the breeders to let down on their serious breeding work on straight breeds. It has been my personal observation that the production of cross-bred hatching eggs has been a stimulation to better breeding and more rigid selection of our straight breeds.

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“THE egg producer's competitors are not his fellow poultrymen, but are all the merchandisers of manufactured food stuffs, cigarettes, candy, radio sets, automobiles, and everything that is sold by high-pressure advertising and super-salesmanship.

—Andrew Christie, New Hampshire chairman, New England Fresh Egg Institute.

# Egg Production in the United States

By G. P. Scoville

*Reprinted from Farm Economics*

THE great expansion in egg production in this country occurred before 1900. In 1899, the production per capita was 86 per cent greater* than in 1879. In the next 20 years, the increase was only 7 per cent. The maximum production per capita occurred in 1929, and was 29 per cent greater than in 1899.

### The South

For each census year since 1880, the South has produced about one-fourth of the eggs produced in the United States. There is no important movement of eggs in or out of the South, so that the production about represents consumption.

The production per capita in the South has been about one-fourth below the average for the United States as a whole. Flocks are small, and egg production low. Hens lay the best in a climate which is neither too hot nor too cold. Prices of corn and wheat are higher in the South than in the Corn Belt states to the North.

### Pacific Coast States

For fifty years, from 1880 to 1930, the production of eggs increased faster than population on the Pacific Coast. There were eight times as many people, but 32 times as many eggs in 1929 as in 1879. Prior to 1920, the eggs produced about equalled those consumed. Nineteen hundred and twenty was the first census year when the production per capita in the Pacific Coast states exceeded the United States average. At about this time, commercial poultry centers, such as those at Puget Sound, Petaluma and Los Angeles, were developed. Large flocks are kept on these farms, and the egg production per hen is high, because of the favorable climate. Central associations that grade, ship, and market the eggs have facilitated the shipping of these surplus eggs across the continent to New York and other eastern cities.

From 1919 to 1929, the egg production on the Pacific Coast increased 159 per cent; and population, 47 per cent. But depression, which results in an unbalanced price structure, has made it more difficult to produce eggs for distant markets. Since there was little change in transportation and handling costs the returns to the producers were so low that egg production in the Pacific Coast states decreased 23 per cent from 1929 to 1934. This was the first census that showed a decrease in the production of eggs in this region.

The per capita production of eggs in the Pacific Coast states exceeded the United States average by 52 per cent in 1924, but by only 33 per cent in 1934.

### North Central States

In 1880, the North Central states had 35 per cent of the people in the United States, and produced 52 per cent of the eggs. In 1934, they had 31 per cent of the people and produced 49 per cent of the eggs. Even though in recent years large numbers of commercial poultry farms have been developed in the Northeast and the Pacific Coast states, the North Central states still produce about one-half of the nation's eggs. These eggs come from farm flocks, usually large flocks of from 100 to 400 hens, that are kept on large grain producing farms. Eggs are produced at a lower feed cost in the North Central states than in other parts of the country.

The surplus eggs are marketed in eastern cities, but, because of the unbalanced price structure, production in these states declined 20 per cent from 1929 to 1934. The first census year to show a decrease in the production of eggs in the North Central states was 1934. But the decrease was not quite equal to the decrease on the Pacific Coast.

### North Atlantic States

The North Atlantic states had 86 per cent as many people as the North Central states, but produced only 27 per cent as many eggs. Cheap feed, rather than nearness to market, was the factor that determined where the bulk of the eggs was produced. The North Atlantic states have been the only section where more eggs have been consumed than produced, and the only section to produce as many eggs in 1934 as in 1929.

The producers in the North Atlantic states have the advantage of proximity to the eastern cities, and this advantage increased when the price structure became unbalanced. The unbalancing of the price structure resulted in a larger proportion of the consumer's dollar being used to distribute the eggs, and a smaller proportion to produce them. Since in the cities egg prices dropped, and transportation costs were relatively fixed, the farther the producer was from the market, the greater was the proportion of the consumer's dollar taken for transportation.

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*The census reports on egg production are not always strictly comparable. For instance, eggs produced by poultry other than chickens were included in the census of 1900 and earlier. Furthermore, the date of the enumeration varied. The 1880, 1890 and 1900 censuses were taken as of June 1; and the 1920, 1925 and 1935 censuses as of January 1. In 1910, the date was April 15; and in 1930, April 1. The egg production has been adjusted to correct for differences due to change in the date of the enumeration by Clawson, Marion, Economic Aspects of Chicken and Egg Production in the United States, mimeographed report, United States Department of Agriculture, Bureau of Agricultural Economics, March 1934.

The egg supply per capita was as follows:

| | | | |
|---|---|---|---|
| 1880 | 9.14 Dozen | 1920 | 18.28 Dozen |
| 1890 | 13.02 Dozen | 1925 | 19.63 Dozen |
| 1900 | 17.03 Dozen | 1930 | 21.91 Dozen |
| 1910 | 18.00 Dozen | | |

Farm Economics, February, 1939. Cornell University, Ithaca, N. Y.

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THIS practice of heralding the coming of dawn with lusty crows has made the rooster unpopular in sections where non-poultry keeping neighbors are within hearing distance. In London, or rather on the outskirts of the world's largest city, thousands of people keep poultry and as most of them are breeders, they must have roosters, but the early crow is not heard. Here is the reason: A canopy of canvas is placed about a foot above the roost, and when Mr. Rooster stretches up to start his vocalizing, he encounters this canopy and gives up the job.

—Poultry Herald, St. Paul, Minn., March, 1939.

# Cleveland Egg Conference Favors Federal Relief Purchases

By Roland C. Hartman

*Condensed from Everybodys Poultry Magazine*

REPRESENTATIVES of producers and market men, meeting in Cleveland on February 1, recommended that the government buy eggs for relief distribution. The meeting was called by the U. S. Department of Agriculture on request of Hobart Creighton, president of the National Poultry Producers Federation.

The producers group, consisting of about 20 individuals, and the market group, which comprised more than 100 individuals, held separate meetings in the morning, coming together for a joint session in the afternoon to go on record with a resolution to the effect that they were "not opposed to government buying of eggs for relief purposes, provided that such buying be only in such quantity as can be promptly distributed for consumption, and then only by a well supervised method which will eliminate waste."

The resolution was definitely of a compromise nature, for the market men in their morning session, were "unalterably opposed to the government buying eggs for the purpose of influencing the market price."

The producers, on the other hand, had urged that the government be prepared immediately to buy eggs for relief purposes only, offering the opinion that eggs should not be more than 1 cent a dozen lower than on the corresponding day of a year ago.

Sentiment among the producing elements was by no means unanimous that the government step into the egg market. The Pacific Coast co-operatives were solidly opposed. A number of eastern organizations that had had an opportunity to consider the matter had voted against government entrance into the egg market. The representative from the Southeast felt that government buying might prevent a further decline because of the psychological effect, but he didn't believe that too much government interference was desirable, judging from the mess it had made of cotton.

### Hatcherymen Want Buying

The strongest demands for government buying came from midwestern hatchery representatives who were of the opinion that low egg prices at this early season of the year would be very harmful to producers and squeeze many of them out of business. Expressing themselves strongly, their views dominated the meeting, and the other representatives of producers took the disposition to "ride" along.

Arguments favoring government buying shaped up into the following five points:

1. January egg production was abnormally high because of extremely mild weather. Flocks that ordinarily don't lay in winter because of poor care were producing eggs.
2. Egg storage holdings in January were below what they were a year ago, hence, there seems to be no plausible reason why the egg market should be weaker.
3. Traders in eggs were deliberately hammering down egg prices in order to make greater profits for themselves.
4. Low prices early in the year would force many poultry producers out of business.
5. The government is buying grapefruit, butter, peanuts and other farm products for relief distribution, so why shouldn't it buy eggs?

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(Everybodys Poultry Magazine, March, 1939)

### Early Production Has Increased

There is no question but that the production of eggs in January was heavier than it was a year ago. In fact, receipts of eggs at the four leading markets (New York, Chicago, Boston and Philadelphia) for December were 8 per cent above a year ago. Laying flocks on January 1 were 6 per cent larger than a year ago, were laying at a rate of 8 per cent greater than in January 1, 1938, and 42 per cent greater than the 10-year average for that date.

When producers requested government buying of eggs in the spring of 1937, the argument was advanced that abnormally mild weather was responsible for the heavy lay. The same argument was advanced again in 1938 when there arose a demand for government buying, and it was brought forward once more this year.

There are other factors that have increased winter production of eggs. Fall brooding of chicks has become more widespread in commercial poultry areas in the last three or four years. Housing methods have advanced more rapidly than is realized, and sudden cold spells do not have quite as damaging effect on production as was the case before.

During the 1910-16 period, New York City received 12.8 per cent of its annual egg receipts in the months of December, January and February. In the 1931-37 period, this figure had increased to 20.2 per cent. They drive home the fact that chickens nowadays lay during a period when they formerly loafed.

### Influence of Storage Holdings

Cold storage holdings on January 1 of this year were about 64 per cent under the same date of a year ago. It would appear, without further examination, that egg prices should be materially stronger. But when January 1 comes around, storage holdings are rapidly approaching their low point in the year which usually comes around February. The total volume of eggs in storage then is not great, and this volume does not affect the price situation as much as the receipts of fresh eggs.

### Are Prices Being Pushed Down?

The argument that traders in eggs are beating down the price is one that crops up very often in discussions of the egg price situation. While it may seem that there is deliberate price manipulation in certain sections at times, it cannot persist long. If it were true, the egg buyer could say that he would pay no more than 9 cents a dozen for eggs the year around. But he can't do this, because supply of eggs and the demand for them enter into the picture.

It is true that during a period of declining egg prices with heavy egg receipts, buyers are hesitant. They don't want to get caught with a lot of eggs and then take a heavy loss. A poultryman with a good business head wouldn't stock up with several months supply of feed when he expected a drop in feed prices the following week.

In one section, it was reported that individual chain store managers were not buying eggs for fear of having to take a loss on eggs because of falling egg prices. If the individual store manager guesses wrong on his purchases, he may get some demerits. This hesitancy of the egg buyers, large or small, cannot be looked upon as a deliberate effort to beat down prices.

Cold storage operators naturally hope to be able to store their eggs at low prices. They took a heavy loss on the 1937 storage deal, and they lost again on the 1938 storage deal, despite the fact that statistics looked extremely favorable. They are being more cautious this year.

### Effect Upon Flock Owners

The contention that low egg prices early in the year will force many poultry raisers out of business is probably true to the extent that those farm flock owners who go into chicken raising rather strong when prices are good may hesitate to buy chicks. The business poultryman, while he doesn't like to take a loss on his eggs at any time, knows that his profits are made from July through December. He would prefer to see prices low for a short time early in the year for the sake of maintaining decent price levels in the last half of the year.

Purchases of eggs for relief distribution, it is true, will not compete with eggs being sold through the regular market channels. These eggs will simply go to people who haven't been getting eggs, because they are unable to buy them. If these folks who have the misfortune to be on relief get into the habit of using eggs, they are likely to become regular consumers of eggs after they get back on their feet again.

The fact that the government has purchased citrus fruits, butter and a lot of other farm products for relief distribution is not sufficient reason in itself for the purchase of eggs. Government purchases are made only when it can be demonstrated that there is a surplus of the product. The effect is to create artificial prices which tend to aggravate the surpluses by preventing the cut in production that would ordinarily take place. In that sense, therefore, government buying of eggs, where it affects the market price, is more harmful than beneficial.

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POULTRYMEN of three western states — California, Washington and Utah—send more eggs to market through cooperative associations than do producers in all the rest of the states combined. Of a $50,000,000 annual business in cooperative eggs in the United States, nearly $27,000,000 is contributed by these three states, according to commodity figures released from the nationwide cooperative survey of the Farm Credit Administration.

—Washcoegg, February, 1939.

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SENSE of taste in pigeons, ducks and chickens is essentially the same as taste in human beings, according to newspaper reports on the work of Dr. C. Englemann, a German scientist. Pigeons, ducks and chickens are able to perceive sweet, sour, salty and bitter tastes. Pigeons were found to have the most acute sense of taste; chickens, the least.

# POULTRY RESEARCH

## Breeding for Livability

For many years mortality and culling, largely because of leucosis and range paralysis, often removed 50 per cent of the college flock during the first laying year. Since 1932 all breeders have been selected on the basis of family livability. When this selection was begun, there were no families in which all birds were living at the close of the first laying year.

At the close of the last laying year, 16 families, each of five or more full sisters, had 100 per cent livability. The evidence indicates that fowl paralysis can be partially eliminated by the use of families that show resistance to the disease and by the use of hen breeders in preference to pullet breeders.—(Conducted by D. R. Marble).

—Bul. 367, Fifty-First Annual Report, Pennsylvania Agricultural Experiment Station.

## Turkens Not a Cross Between Chickens and Turkeys

"Turkens" (called churkeys in England) have been advertised as a cross between chickens and turkeys. Such claims are not well founded.

D. C. Warren and H. M. Scott, at the Kansas station, tried to make the cross by means of artificial insemination. The results were published in the Journal of Heredity in 1935. Only one fertile egg was obtained from the turkey male—chicken hen cross, and the embryo died after about 3 day's incubation. When two turkey females were inseminated with sperm from chicken males, 12 fertile eggs were produced. Most of these hybrid embryos died very early in incubation, but one lived through the twenty-second day. This embryo looked much like that of a normal Bronze turkey poult but had much lighter colored down and was much farther advanced after 22 days of incubation than is the normal turkey poult.

Russian investigators (1935) reported that a live hybrid was obtained from crossing a rooster and a turkey hen, but they did not give any details.

Considering these investigations, it must be concluded that as yet the chicken and the turkey have not been successfully crossed. The actual fact is that the turken is nothing but a chicken possessing a single dominant genetic factor producing an unfeathered neck. It is properly called Transylvania Naked-Neck fowl.

—S. J. Marsden in Turkey World for March, 1939.

## Early Hatching Increases Returns

Poultry flocks in which the chicks were hatched in March were more profitable than those where the chicks were hatched in April or May, according to M. L. Mosher and H. C. M. Case who summarize the records of poultry record flocks in Illinois Bulletin 444, "Farm Practices and Their Effects on Earnings."

Flocks in which the chicks were hatched in March averaged to return $255 per hundred dollars invested; flocks in which the chicks were hatched in April brought in $213; and flocks in which the chicks were hatched in May brought in only $175 per hundred dollars invested. Average egg yields per hen were 112, 101 and 91 eggs, respectively, for March, April and May hatched chicks.

## Sunshine Aids Hatches

Sunshine improves hatchability, even though the diet of the flock is adequately supplied with vitamin D. This conclusion was drawn from studies of the Agricultural Research Center, mentioned in the 1938 Report of the Secretary of Agriculture. It is stated that the results are "additional evidence that sunshine supplies something of value for normal reproduction and health other than its antirachitic effect."

—Carl H. Schroeder, Everybodys Poultry Magazine, March, 1939.

## Brooding Temperature Does Not Affect Sexual Development

Brooder house temperature and relative humidity had no measurable effect on sexual development. When brooder heat was electrically applied by means of exposed, black-heat resistance coils, the pullets were definitely slower in attaining sexual maturity than comparable pullets exposed to other sources of brooder heat. Heavy grain consumption by immature pullets did not retard sexual development.—(Conducted by E. W. Callenbach and J. E. Nicholas).

—Bul. 367, Fifty-First Annual Report, Pennsylvania Agricultural Experiment Station.

## Wood Sugar for Poultry

In the search for substitute foods for poultry, the German investigators Weinmiller and Mantel have tried out wood sugar.

In comparative tests with Brown Leghorns hens one group received bran along with the wood sugar in order to furnish the same "ballast" content as in the control ration (wood sugar free), while for the other group fed sugar no such adjustment was made.

Protein content and nutritive ratio were the same for all rations. The bran and sugar group ate more food and gave about 10 per cent higher production than the other groups.

—Poultry World, London, Feb. 17, 1939.

## Effect of Feeding Sulphur on Resistance to Coccidiosis

White Leghorn chicks fed sulphur the first eight weeks of their lives were more resistant to coccidiosis, even after sulphur feeding stopped, than chicks fed no sulphur, in a test conducted by C. E. Holmes, J. G. Halpin, and C. A. Herrick at University of Wisconsin (Wisconsin Bulletin 442, "What's New in Farm Science"). The number of birds and the variation of losses were not large enough to warrant conclusions as to how much or what kind of sulphur was best. Losses are not prevented entirely by feeding sulphur and extra care is needed to prevent rickets if chicks are confined indoors more than six weeks.

## Effect of Feeding Sulphur on Feather Development

Barred Rock chicks fed finely ground sulphur lost most of their down and had very dry and scaly skin, in a test reported (Wisconsin Bulletin 442, "What's New in Farm Science") by C. A. Herrick, C. E.

Holmes and J. G. Halpin, University of Wisconsin. The effect was most pronounced when 5 per cent flour sulphur was fed, also very noticeable when 2 per cent was fed. Flowers of sulphur in 2 per cent or 5 per cent caused little loss of down. White Leghorn chicks lost little down due to feeding of flour sulphur, but death losses in both breeds were higher than those in groups fed flowers of sulphur. Dusting sulphur, fed only to Barred Rocks, resulted in high losses, slow growth and lack of thrift among survivors.

## Free-Choice Feeding of Mash and Grain

Layers will balance their own ration satisfactorily when they have access to both grain and mash, provided they have had ample time to become fully accustomed to this method of feeding before they come into production, according to D. C. Kennard and V. D. Chamberlin of the Ohio Experiment Station in the bulletin, "Progress of Agricultural Research in Ohio—1936-37."

"Flocks varied greatly in the proportion of whole corn, wheat or oats they consumed, but the proportion of the total grain to mash was comparatively constant and in proportion to the protein content of the mash. To put it differently, the birds appeared to balance their ration pretty closely on the basis of protein content. When the birds received a mash with varying percentages of protein (18 to 24 and 32) the percentages of mash consumed were 41 to 33 and 20, respectively; on this basis the percentage of protein of the total feed intake was 14.6, 15.3, and 15.2. The rate of egg production affects mash consumption and, incidentally, the protein intake."

## Methods of Feeding Laying Hens

Six different methods of feeding a given ration to laying hens were tried out over a 3-year period at the Wyoming Agricultural Experiment Station as follows: (1) mash self-fed, grain hand-fed 1-3 in the morning and 2-3 in the evening; (2) mash self-fed, grain hand-fed in the evening; (3) mash self-fed, grain self-fed in the afternoon; (4) mash self-fed, grain hand-fed in the morning; (5) mash self-fed, grain self-fed all day; and (6) an all-mash mixture self-fed all day.

There were no significant differences between any two systems of feeding as shown by egg weight, mortality, gain in body weight, fertility, or hatchability.

The cost of feed per dozen eggs was lowest for the all-mash method and highest for the system in which the grain was hand-fed early in the morning. Egg production was slightly higher under the all-mash system.

The net result of the entire experiment is expressed in the conclusion that any of the systems may be used successfully in the feeding of laying hens.

—L. E. Card in Poultry Tribune for March, 1939.

## Fishy Flavor in Turkeys

Previous work indicated that fishy flavor and odor in turkeys resulted from feeding either 1 per cent of a poultry grade of cod liver oil, or 10 per cent of vacuum-dried white fish meal, or both, during the entire growth period of 28 weeks. The removal of both of these ingredients from the ration eight weeks before slaughtering practically eliminated the occurrence of fishy flavor and odor.

These findings were confirmed in the experiments of the current year. When either one-fourth of 1 per cent of a concentrated cod liver oil, or one-fourth of 1 per cent of a concentrated sardine oil, was fed in place of 1 per cent of an unconcentrated cod liver oil, there was practically no fishy flavor or odor. Dark fish meal produced a more pronounced flavor and odor than vacuum-dried white fish meal.—(Conducted by R. R. Murphy, R. V. Boucher and H. C. Knandel).

—Bul. 367, Fifty-First Annual Report, Pennsylvania Agricultural Experiment Station.

## Losses of Carotene from Alfalfa Leaf Meal

Temperature appeared to affect the rate of loss of carotene from alfalfa leaf meal when stored, but the type of container had no affect upon either the rate or the amount of destruction of carotene in tests conducted by O. H. M. Wilder and R. M. Bethke of the Ohio Experiment Station and reported in "Progress of Agricultural Research in Ohio—1936-37."

Portions of alfalfa leaf meal were stored in paper and burlap sacks, in a room at outside temperature, in a heated room, and in the freezing room of a refrigerator. Four per cent of ball-milled oatmeal was added to other samples at room temperature.

There was a progressive loss of carotene in all samples. At the end of one year, the loss ranged from 27 per cent in the refrigerated sample to 80 per cent in the sample at room temperature. The loss in the sample stored at outdoor temperature was 61 per cent.

The use of paper or burlap sacks, or the addition of oatmeal floor, had no effect upon the rate or amount of destruction of carotene.

## Dry Skimmilk for Chickens

In three years of experiments with growing chicks, dry skimmilk materially increased the rate of growth during the first two weeks and during the period from 20 to 24 weeks of age. Most efficient and economical gains in body weight up to four weeks of age were made with 2.5 to 5.0 per cent milk, and from 4 to 12 weeks with 1.25 to 2.5 per cent milk, in an all-mash ration. During the period from 12 to 20 weeks of age, the gains were negligible.

Two years of the experiments with laying hens show that 2.5 per cent dry skimmilk in the all-mash ration was the most efficient and economical level for egg production as well as for hatchability. The use of dry skimmilk in place of the meat and fish protein concentrates decreased age at first egg, increased body weight at first egg and increased per cent of egg production and egg weight. (Conducted by H. C. Knandel and R. V. Boucher).

—Bul. 367, Fifty-First Annual Report, Pennsylvania Agricultural Experiment Station.

## Loss of Vitamin A During Storage of Feed

The optimum requirement of chicks for vitamin A appears to be more than 200 and less than 300 units per 100 grams of feed. When stored in burlap bags at room temperature, poultry feeds containing cod liver oil lost vitamin A rapidly during the first eight weeks. Between the eighth and twenty-fourth weeks there was little further loss. As a margin of safety, mixed feeds containing cod liver oil as the chief source of vitamin A, which are likely to be stored for several weeks before being fed, should contain twice the optimum quantity of this important factor.

Some of the most commonly used commercial poultry feeds were found to be definitely deficient in the chick antidermatitis factor. This may account for many hitherto unexplained failures in poultry production. A survey of feed stuffs has not yet revealed a good source of this vitamin.—(Conducted by R. V. Boucher and H. C. Knandel).

—Bul. 367, Fifty-First Annual Report, Pennsylvania Agricultural Experiment Station.

## Wheat Germ Oil and Fowl Paralysis

Wheat germ oil had no appreciable affect upon the duration of fowl paralysis in tests conducted by C. W. Barber, New York State Veterinary College, and reported in The Cornell Veterinarian (Jan. 1939, Vol. 29, No. 1).

Of a group of 21 birds with fowl paralysis and receiving 1 cc. each of wheat germ oil daily, 15 showed no improvement, four made partial or temporary recoveries, one died from respiratory trouble two months after apparently complete recovery and showed no lesions of paralysis, and the remaining bird apparently recovered completely and had walked normally for seven months when the results were summarized. The first 19 birds showed definite paralysis lesions on post mortem examination.

One bird in the control group of 14 paralyzed birds showed complete recovery. There were no partial or temporary recoveries in this group.

## Chicken and Turkey Coccidia Apparently are Different

Two experiments have been carried on to learn whether turkeys are susceptible to chicken coccidia, and conversely whether chickens are susceptible to turkey coccidia. Available evidence indicates the answer in both instances is "no."

In the first experiment, 16 turkey poults 4 weeks old and 2 chicks 12 weeks old were fed heavy doses of the oocysts Eimeria tenella, the organism which is responsible for chicken coccidiosis. Both chicks died 6 days later, but none of the turkeys were affected, nor did they show any evidence of coccidiosis when autopsied.

In the second trial, 5 chickens 4 weeks of age, and 2 turkeys 8 weeks of age were given oocysts of turkey coccidia. Both turkeys were infected, and passed large numbers of the oocysts; but the chickens showed no symptoms of disease, nor were oocysts discovered in their droppings or at autopsy.

—Wisconsin Bulletin 442, "What's New in Farm Science."

## Epidemic Tremor

Epidemic Tremors, or, if you are a collector of words, Avian Encephalomyelitis, must be considered an infectious disease, according to a report in the Jl. of the Am. Vet. Med. Ass'n. (Dec. 1938) by Drs. Van Roeckel, Bullis and Clark of the Massachusetts Experiment Station.

One of the peculiar and striking symptoms is the tremor or vibration of the head and neck. But this condition is frequently absent. So-called ataxia, that is, unsteady gait due to inability to control the muscular movements, is a characteristic symptom. Some chicks are inclined to sit on their "haunches." When disturbed they show little control over their movements or fall on their sides. A dull expression of the eyes is usually noticeable. Losses may be as high as 50 per cent.

The disease is of economic importance in some localities. It is caused by a filterable, infectious agent which is present in the brain but also in other organs. Healthy chicks may contract the disease by contact with infected birds. There are indications that the infectious agent may be carried in the hatching egg and that the breeding stock may serve as the store-house of the infection.

—Carl H. Schroeder, Everybodys Poultry Magazine, March, 1939.

## Evaporation in Eggs During Shipment

The Cape Egg Circle in South Africa made some tests to find out whether eggs could be shipped to England with less evaporation. The eggs were packed (1) in a regulation box and pack, (2) in a box without space, but ventilated, and (3) in a closed box, no ventilation, lined with a crystalline waxed paper over top and bottom.

Results (The South African Poultry, Pigeon and Bird Magazine, Feb., 1939) showed 22.33 per cent evaporation for the first pack, 15.15 per cent for the second pack, and 9.86 per cent for the third method.

English receivers raised some objection to the waxed paper lined cases on the grounds that one bad egg in a case would affect the remaining eggs because of lack of ventilation. Condensation of moisture on the shells upon removal of the eggs from the cold storage chamber of the boat was also considered objectionable. It was said that the cases would not be opened for from 10 to 14 days later, and in that time mustiness would develop.

## Fishy Flavor in Eggs

Fish meal alone, or in combination with soybean oil meal as the only protein supplements in all mash rations, did not cause fishy flavor in eggs; but when eggs were collected in buckets which had been used to store feed containing fish liver oil, or when eggs were soiled with fish liver oil, they developed fishy flavor. Eggs in contact with droppings for 24 hours developed objectionable flavors and odors.—(Conducted by D. R. Marble, J. E. Nicholas and H. C. Knandel).

—Bul. 367, Fifty-First Annual Report, Pennsylvania Agricultural Experiment Station.

☛ COLLEGE co-eds apparently eat very few eggs. In a survey at Ohio State University, only 46 per cent had eggs during a week's period, while 93 per cent had citrus fruits or tomatoes, and 90 per cent drank milk.

## Answers to Questions on Page 141

**1-No; 2-Yes; 3-Yes; 4-Yes; 5-No; 6-Yes; 7-No; 8-No; 9-No; 10-Yes.**

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# Egg Demand and Income Are Partners

By E. L. Warren and W. D. Termohlen

***Condensed from Poultry Tribune***

MUCH has been written and even more said during recent months about egg consumption and methods of increasing consumption. From a sound economic standpoint, we believe that these discussions often have been confused and confusing. Why this opinion?

The total consumption of eggs can be increased only by producing more or importing more, and neither of these separately or together necessarily means better returns to producers. Consumption refers to the using up of an article of exchangeable value. This is a fundamental consideration for domestic egg producers. The total number of eggs produced in any one year serves as the measure of egg consumption in that year, with certain adjustments for that portion wasted and carried over into the next year. If the available supply is enlarged through an increase in production, we have greater consumption, but, unless at the same time consumers are in a position to pay as much or more per dozen, the price has to be lowered in order that all available eggs may be eaten.

When individual producers or the spokesmen of organized producers say they want the consumption of eggs increased, their actual meaning is that they want the "demand;" that is, consumers' requirements, increased. Producers want more eggs eaten without any reduction in price to them for their effort in producing, or they are desirous of a higher price for an equal or greater quantity of eggs produced.

**Table A. Estimated Yearly Per Capita Consumption of Eggs in Dozens by Families Spending Weekly per Person for Food***

| Communities | $0.67–$1.32 | $1.33–$1.99 | $2.00–$2.66 | $2.67–$3.32 | $3.33–$3.99 | $4.00–$4.66 |
|---|---|---|---|---|---|---|
| North Atlantic Industrial[2] | .... | 13.3 | 18.6 | 23.2 | 27.9 | 35.5 |
| East North Central Cities[3] | .... | 17.9 | 22.8 | 25.0 | 31.9 | 43.7 |
| Pacific Cities[4] | .... | 12.9 | 23.3 | 27.7 | 30.0 | 35.6 |
| East South Central Cities[5] | 15.7 | 17.9 | 26.2 | 30.6 | ... | ... |
| Southern Cities—Negro[6] | 8.1 | 11.1 | 13.7 | 21.5 | ... | ... |

*One dozen of eggs is considered as averaging one and one-half pounds in weight.

[2] Cities of Boston, Springfield, Berlin, Claremont, Concord, Dover, Keene, Littleton, Manchester, Nashua, Portsmouth, New York, Rochester, Lancaster, Philadelphia and Pittsburgh.

[3] Cities of Indianapolis, Detroit, Grand Rapids, Lansing, Marquette. Cincinnati. Columbus and Milwaukee.

[4] Seattle, Oakland, Los Angeles, Sacramento and San Francisco.

[5] Birmingham, Mobile and Memphis.

[6] Birmingham, Mobile, Memphis, Richmond and New Orleans. The above records involved 3542 families, none on relief.

U. S. Department of Agriculture, Bureau of Home Economics. Mimeo, Rev. 1122138. Food Economics Section, "Diets of Families of Wage Earners and Low-Salaried Clerical Workers Living in Industrial Communities in Four Regions of the United States, 1934-37."

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(Poultry Tribune, December, 1938)

Sound programs cannot be developed until there is general appreciation of the fact that increased demand is more important to the producer's pocketbook than is increased consumption, and also that the most important factor affecting demand is income.

### Demand Dependent First on Income

The demand for a product is usually determined by the income of actual and prospective purchasers, and by the price of this particular product in relation to the price of other products for which it might be substituted. Some products such as flour and meal are so cheap that poor people eat more of them than do wealthy people, and in times of depression people may switch from meats and other foods to bread and similar products. However, in the case of eggs, it appears to be generally true that the higher the income of the family, the larger their consumption of eggs. This is indicated by the accompanying table and chart prepared from material issued by the Bureau of Home Economics, U. S. Department of Agriculture, showing the number of dozen eggs eaten annually per person by families in different regions of the country, according to the amount of money these families spend for food each week. These figures show that for the families covered in this survey, if expenditures for food increased, the number of dozen eggs eaten increased in nearly direct proportion.

### More Money—More Eggs Eaten

Other figures are available which show how the amount of money spent for food per person is almost entirely dependent on the income of the family. Table B, which was prepared from figures compiled by the U. S. Department of Labor, shows the relationship between the family income and the amount of money spent for food by families in Chicago, Ill. In the column on the right-hand side of this table, it will be noticed that with each increase in family income, there is a noticeable increase in average weekly amounts spent per person for food.

Table B. Expenditures for Food of Chicago Families, 1935-36. (Native White Non-Relief Families Including Both Husband and Wife.

| Family Income Group | Annual Amount for Food | Weekly Amount for Food | Weekly Amount for Food per Person (4 people per family) |
|---|---|---|---|
| Annual Income | | | |
| $ 500—$ 750 | $348 | $ 6.69 | $1.67 |
| 750— 1000 | 405 | 7.79 | 1.95 |
| 1000— 1250 | 457 | 8.79 | 2.20 |
| 1250— 1500 | 529 | 10.17 | 2.54 |
| 1500— 1750 | 589 | 11.33 | 2.83 |
| 1750— 2000 | 619 | 11.90 | 2.98 |
| 2000— 2250 | 660 | 12.69 | 3.17 |
| 2250— 2500 | 761 | 14.63 | 3.66 |
| 2500— 3000 | 786 | 15.12 | 3.78 |
| 3000— 3500 | 863 | 16.60 | 4.15 |
| 3500— 4000 | 945 | 18.17 | 4.54 |
| 4000— 5000 | 1064 | 20.46 | 5.12 |
| 5000— 7500 | 1125 | 21.63 | 5.41 |
| 7500— 10000 | 1449 | 27.87 | 6.97 |
| 10000 and over | 1781 | 34.25 | 8.56 |

U. S. Department of Labor—Mimeo, release 5626. January 2, 1938. This record involved 2635 families.

The information from these two tables indicates that the actual use of eggs can be increased materially by raising the incomes of average consumers. For instance, a family that receives only $650 a year might spend only $1.50 per person per week for food, and from the chart it will be seen that such a family in the North Atlantic States might buy only about 13 dozen eggs per person each year. However, if a family in the same region received $1,300 a year, they might spend $2.50 per person per week for food, and with such expenditures each person might eat 19 instead of 13 dozen eggs per year. For families in the Pacific Coast states, the increase in egg consumption accompanying increased incomes might be even greater, if the figures reported by the Bureau of Home Economics may be considered representative of all families.

### Other Demand Influences are Gradual

It is true, of course, that in addition to the factor of income which influences the demand for eggs as compared to other food products which cost less per pound, it is also necessary for families to make decisions as to what kind and type of food product they will buy. While such decisions will depend to a great extent on the price of eggs in relation to the price of possible substitutes, they may also be affected by the slower process of education, advertising, changing custom, etc. A normal person can eat only so much food and there is little possibility of increasing the total amount of food eaten.

The most desirable method of increasing the number of eggs eaten by consumers without reducing prices would be to have the general level of consumers' incomes raised. This would permit them to substitute "protective foods," such as eggs, for other products which are less desirable from a sound dietary standpoint. If that cannot be done, and if the demand for eggs is to be increased without lowering prices or raising the incomes of possible purchasers, it will be necessary to persuade people to eat eggs instead of some other products. It is to this end that programs or campaigns to increase consumer demand should be directed.

An industry entering into a program or campaign through educational and advertising mediums, as a means of increasing demand, must do so with the realization that it is useless to expect real results in a short time. Increased consumer demand campaigns, commonly called increased consumption campaigns, must be cooperatively and wholeheartedly entered into for a long period of years, and planned to approach from every possible angle all the different income-level groups.

Families with incomes about $2,400 a year seem to be eating an average of one or more eggs per person per day. This is considered by dieticians an excellent amount. It seems quite logical, therefore, to suggest that in order to get results sponsors of increased egg demand campaigns should first make plans to reach the families with less than $200 a month incomes.

## *Turkey—For Any Day in the Year*

Long before the Mayflower poked an inquisitive nose into the rock-bound shores of New England, the turkey was being featured on more than one Indian feast day. And just as soon as the Pilgrim Fathers acquainted themselves with the new land, they too became partisans of the rich succulent goodness of this proud American bird. Today the turkey is universally accepted and acclaimed.

Formerly, turkeys were eaten in most homes on holidays. Through the introduction of modern methods of refrigeration and distribution, turkeys of the finest flavor and quality may now be had for every season and every occasion.

—Washcoegg, February, 1939.

# Catarrhal Enteritis of Young Turkeys

By W. R. Hinshaw and E. McNeil
University of California

*Condensed from San Joaquin Valley Poultryman*

CATARRHAL enteritis associated with a heavy protozoan infection is one of the principal causes of mortality in poults in California. The disease is especially severe in poults 2 to 9 weeks of age.

### How Spread

The results of field studies prove that the disease is contagious, and is transmitted to healthy poults by the introduction of droppings from infected turkeys. Methods of transmission that have been observed are: (1) direct contact with sick birds, (2) direct contact with adult carriers or survivors of recent outbreaks, (3) introduction of healthy poults into dirty pens which have been recently used for diseased birds, (4) contaminated utensils, (5) droppings carried into the pens on shoes and clothing of caretakers.

Two specific examples of transmission that illustrate some of these methods are given below:

(1) One rancher used two to three older turkeys in the brooder to teach the young poults to eat and drink. In each brooder where this method was practiced losses from the disease occurred following the usual incubation period of 4 days to 6 days.

(2) On one ranch severe losses followed a practice of the attendant walking on the wire platforms used in one house, after he had cared for poults in houses where the disease existed.

No field evidence has been collected which would indicate that the disease can be transmitted by insects, flies or animals except by mechanically carrying infected droppings on their bodies.

### Symptoms in Acute Outbreak

In an acute outbreak there are no specific symptoms; listlessness, body temperature normal or subnormal, foamy or watery droppings. In most cases the poults continue to eat, but do not assimilate food, so become emaciated. Duration of disease is from 1 to 6 days following the period of incubation. It may affect poults 1-9 weeks of age with heaviest mortality at 3-5 weeks (mortality 20-90 per cent).

### Also Observed in Older Poults

A sub-acute type of the disease has been observed in older poults. In these cases listlessness, and loss of weight are the most obvious symptoms. Mortality is low, but financial loss from stunted individuals is great.

At autopsy there is marked catarrhal enteritis characterized by watery contents, marked lack of tone and distended bulbous areas, occurs principally in the duodenum and jejunum.

The mortality in field outbreaks ranged from 20 to 90 per cent. Most of the survivors of an outbreak showed a definite retardation of growth. Where the mortality was low, this retardation of growth was noticeable by the large number of runts in the flock. There appeared to be a definite relation between age and susceptibility, the younger poults suffering greater losses than the older ones. After the age of 8 weeks the resistance is high.

### Transmission Studies

Experimental transmission studies have shown the same disease picture as was found in the field outbreaks. Likewise the mortality, retardation of growth, and age susceptibility were identical to the field picture. In a series of transmission experiments all the protozoa were introduced into protozoa-free birds, in almost all combinations. The exact agent (or agents) has not been determined, but in all the successful transmissions, Hexamita was present either alone or in combination with one or more other protozoa. In all the transmission trials, the birds in the control pens remained normal.

No experimental attempts have been made to transmit the disease through eggs, but there is plenty of field evidence to indicate that it is not transmitted in this manner.

### Suggestion for Prevention

No remedy has been found for the disease and there is little hope that one will be found. The fact that we were able to keep all of our control pens free from the disease even though they were in close proximity to the inoculated pens, does however show that prevention is possible. The results obtained from the field observations and from the transmission experiments suggest the following methods of prevention.

The primary source of infection is the intestinal contents of carriers. The entire prevention program must be built around the recognition of this fact. Finding a satisfactory method of preventing the transfer of droppings from carriers to young birds is the most efficient method of preventing the disease. No general recommendation as to the best procedure to follow can be given because every ranch requires a separate solution of the problem of eliminating the danger of having carriers on the ranch.

This may involve rebuilding a brooder house, or the removal of the breeding pens to another part of the farm or another. In any case, the person who cares for the birds is the worst transmitting agent.

Factors which may aid in solving the individual problem are given below:

1. Selling all breeding birds at least 2 weeks before any poults are hatched.
2. Complete isolation of the breeding unit from the brooding quarters.
3. Separate attendants for the breeding flock and young poults.
4. Use of cement yards, and wire pens.
5. Feeding and watering equipment arranged, so that the attendant does not need to enter the pens.

San Joaquin Valley Poultry Producers Association, 327 North D St., Porterville, Cal.
(San Joaquin Valley Poultryman, Jan. 20, 1939)

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THE great blue heron was put up against the fighting blue hen March 2 for designation as Delaware's official bird. A bill in the Legislature favored the heron, but opposition developed quickly. The long-necked bird, opponents argued, is only a summer visitor. The blue hen has been the State's unofficial symbol since Revolutionary War days.
—Newspaper Article.

# Diary of a Poultryman

By P. S. White

Egg Farmer, Wayne County, Ohio

*Condensed from Everybodys Poultry Magazine*

**March 1** — And Time — Well, it marches on. At least that is what George Mann, our family barber, meant today when he said the gray hairs in my head were beginning to thicken.

Only a few more weeks and chick brooding will be with us again. It seems to me that I have just about enough to do as it is without the additional work of brooding several thousand chicks. Then, too, I haven't forgotten all of the hardships of last year's brooding. Wet weather, chick-killing dog, coxy and high price feed have all left their mark in my hair.

**March 2**—Yes, March did come in like a lion, if blowing off another section of felt roof is lion-like. This morning, we had that repair job to do the first thing after the regular work was done. I am getting wise now and always keep an extra roll of roofing on hand for emergencies.

**March 3**—I claim it is a dirty trick on the part of someone when a second hand egg case containing rotten eggs is sold to an unsuspecting producer. That condition has happened to me on several occasions, but today was the dirtiest of all. Yesterday, I brought home a load of cases. There was an odor in the basement as soon as they were stored, but it reached the height of endurance this afternoon. Something had to be done. It was; I located the case. There they were halfway down in the case, 3 dozen of them, some whole, some cracked, some smashed. I opened the furnace, opened all windows, hosed out the case, and then took time out to draw a breath of pure, fresh air. "A relief," says I, "a relief."

**March 9**—Top eggs are not gaining very much, not losing very much, maintaining the status quo. Feed prices are about so-so and life on the ranch goes on pretty much the same. But I don't imagine life was quite so tranquil for a chicken man over east of town when his brooder house and 500 chicks burned to the ground. I have never gone through that experience but my fingers are always crossed. A couple of days or so ago, the lamp in the waterer on the second floor of the barn caught on fire. Kid White saw it from the kitchen window and rushed out and smothered it with a wet feed bag. She probably kept the barn from burning.

**March 10**—I made a chart, "Distribution of Daily Egg Production" which will be used in tonight's poultry school. This is the last meeting and will be devoted entirely to production and marketing of quality eggs. This is the summary of the chart according to our records.

| | 8 a.m. | 11 a.m. | 2 p.m. | 5 p.m. |
|---|---|---|---|---|
| Per Cent of eggs | 37 | 33 | 25 | 5 |
| Layed before noon | | 70 per cent | | |
| Layed by mid-afternoon | | 95 per cent | | |

It seems that there are too many eggs of low quality being sold, so Ralph Treat is going to emphasize such points as yolk color, thickness of the white, air cell, shell texture, gathering at least three times a day, thorough cooling before packing, packing only clean eggs, and moisture in the egg room.

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(Everybodys Poultry Magazine, March, 1939)

A chart will also be used to show the structure of an egg and one showing the results of different methods of cooling eggs. So many folks are rather timid about asking questions that cards will be passed for written questions.

**March 11**—Poultry schools are now a thing of the past in Wayne County until next year. Spring work is coming on and folks won't have very much time for outside activities. Things went over in a large way last night. Much interest was shown and especially in the moving pictures of various producers farms. I saw myself, for instance, go through all the steps taken in packing eggs. The written question system seems to work better than oral questions. There were about 50 questions asked and Ferguson called on various ones of those present to answer them.

**March 12**—I made a special trip to town this morning for a barrel of salt brine. William Ball the manager of the cold storage locker plant, has been saving it for me when he changes the solution on his shoulders, bacon and hams in the process of curing. I simply can't stand to see anything wasted, so several weeks ago, the hot idea was concocted to use salt brine on the ranch roads to prevent grass from growing in the middle.

There are now 130 gallons of the dope on tap and it is only a question of time until a blade of grass is going to get soaked as soon as it appears. It doesn't do very much good to cut the grass off with a hoe, in fact, it seems that it is really a cultivation. But the salt brine solution will reverse the process of osmosis, thereby, drawing all the sap out of the roots. The grass will be bled to death, so to speak.

**March 14** — Ralph Sheppard, our egg inspector, is still growling about interior quality. Ralph claims that the boys don't take as good care of their eggs as they should in order to get the top price. A few whiffs of green grass sure does put the color in the yolk. That is the trouble, it puts too much color in the yolk.

**March 15**—Here we are again, the Ides of March. In about 30 days or so, it will be the Ides of chicks for me. Then is when the work and responsibility starts for the Old Man. Right now, I feel that I am dragging both feet through the grave. I have one of those head colds that are experienced a few times during one's life.

**March 16** — The accumulation of worldly goods has always been a difficult project for me to accomplish, but it doesn't seem to work that way with Donn. The sun certainly shines on that boy and his live stock. Another set of twin lambs, 200 per cent increase in the flock this year. Rosy Marie, his registered Jersey cow has had two daughters during the last two years, a 100 per cent increase per year.

But the Old Man, that's me, burns some of his chickens in the furnace well nigh every day. I wonder what is the matter with these crazy hens? They die and then the death march starts towards a good hot fire. I always try to reconcile myself that only the weak ones are dying. Sometimes, I think I stretch my imagination a wee bit.

**March 17**—Mr. Davault, auto salesman, spent most of the afternoon talking trucks to me. I had invited him to come over so the work was arranged in such a manner that we could discuss the situation thoroughly. I feel that a half-ton truck will serve my purpose very well. It is cheaper to hire what heavy hauling that would need to be done instead of trying to maintain a larger truck.

We didn't arrive at any definite conclusion, but he is going to bring a demonstrator over in the morning. We are going to load a bunch of empty cases as a practical test out. Coops and cases don't load economically, as far as space is concerned in commercial express body trucks.

**March 18**—Headaches in the poultry business usually outlive your money. I have bought a new truck. I bought it because I had to have another truck. Just at the time when I had accumulated a couple of dollars for a rainy day, I had to buy a new truck.

**March 19** — The pasture is now covered with 20 tons of poultry manure to the acre. Four hundred pounds of 20 per cent super-phosphate and 4,800 pounds of lime added per acre for good measure. If there is anything to making two blades of grass grow where only one grew before, say I, it ought to do it's stuff now.

Then we hooked up the electric fence and turned the cows in the paddock. Lady Dot, the young heifer, who has specialized in jumping fences, went up and touched the fence with a very wet nose. She spent the rest of the afternoon racing around the paddock with her tail straight out behind. Donn White had evidently thought that sparks should fly from the fence all the time. Claimed it wasn't working, so he went over and grabbed hold, bare handed. He won't do it again.

**March 21**—The official first day of spring. Spring is the season of Faith and Hope and I might add Charity too. I suppose we all have a certain amount of faith in our work and hope that this year will be better than last. And we will need more or less charity in dealing with chicks that have coxy and worms. The resolute is always to kill such birds, but often I think I am somewhat chicken hearted. I say to myself that I will get them the next round, but too often, like tomorrow, that time doesn't come.

**March 22** — One of the first loads that I made with the old truck was oak lumber from a saw mill at the village of New Pittsburg. Today the last load the truck made was a similar load from the same village, but a different mill. When I came home, Mr. Davault was here with the new truck. And it was with many memories and heartaches, too, that I watched the old truck go out the drive and down the road. Away, gone, it will be junked. If I had in a lump sum, the value of all the cargoes that truck had hauled since 1925, I would be able to retire.

But it is off with the old and on with the new and the new one is a beauty. We have already painted the under side of the fenders with a special under fender paint to prevent rusting. Tomorrow we will give the entire truck a good waxing. I am going to take better care of this truck than I did of the old one. Trucks cost lots of money for me.

**March 24**—The temperature in the egg room stands at 40 degrees, the relative humidity at 70 degrees. That is cool; it is also damp. Mr. Bohnvecio, an auction member, was a visitor Tuesday. He suggested, for better air circulation, that a hole be cut in the water pan and a wall be soldered in. This would make the water pan similar to a cake pan when the cake has a hole in the center. Late yesterday afternoon, I brought the pan home from George France's tin shop and gave it a good coat of aluminum paint. This morning, early, I painted it again. Also over-hauled the fan motor.

The whole outfit is in operation now and does it work? I guess yes. The air is drawn down from the ceiling through the eggs, cracked against the floor, "around and around it goes, and where she stops nobody knows." The egg room contains 800 cu. ft., and the fan exhausts about 2000 cu. ft., per minute. I smoked a fat, black cigar in there a few minutes ago, and the smoke was scattered to the four corners forthwith and immediately. That man Bohnvecio has a head on his shoulders, and it isn't a cabbage head either.

**March 25**—Well, I cleaned out the pockets in my overall jacket this morning. Up to my old tricks again, toting eggs around in my pockets with the usual results. A pocket full of laying mash is a very good drying agent under such circumstances.

**March 30**—It is getting about the time of the year to discontinue the use of lights. The days are getting longer and I am afraid of over doing a good thing. There is no use in deliberately killing the bird that lays the golden egg. Enough of them die as it is.

## *Turkeys for Easter*

Easter represents an especially fine opportunity for growers to increase the sale of their turkeys.

The turkey grower who is content to sell his entire turkey crop at Thanksgiving and Christmas is neglecting an opportunity to increase his turkey income. Among the so-called out-of-season special occasions, Easter ranks high as a time to promote turkey consumption in your community.

Those late turkeys will be in excellent condition to please your Easter customers. Since the egg-producing season is nearing its end, cull out your poor producers and cut down your feed bill by placing them on the market. In case your egg-producing season is entirely finished, Easter represents a wonderful opportunity to dispose of your breeders. Those breeding hens may not have the quality of young market birds, and you should price them to your customers accordingly. In your advertising, stress price appeal.

The first thing to do is to get in touch with established customers to remind them that a turkey would be ideal for their Easter dinner. A double postcard mailing would be most ideal for this purpose. One of the postcards should carry your sales message, and the other should contain an order blank for your customer's convenience. These cards may be printed, mimeographed, typed or hand written, depending upon the size of your business.

The attention (and business) of both old customers and prospective new customers can be obtained by means of attractive newspaper ads. To make these ads most attractive, some illustrations should be used to draw the attention of readers.

—H. K. Marcott in Turkey World for March, 1939.

# Paralysis Can Be Stopped

By C. E. Lee
Beacon Milling Company

*Condensed from Poultry Item*

SCARCELY anybody will dispute the statement that fowl paralysis is our most dangerous and costly poultry disease at present.

By fowl paralysis we mean neurolymphomatosis, leukemia, and allied conditions which are simply various expressions of either the erythro, lymphoid, or myeloid form of what is now more commonly termed "leucosis." They may be produced by injections of bacteria-free filtrates of blood and other tissue extracts from fowls which suffer from any form of this disease.

It is evident that many poultrymen hardly know what to believe about the disease and are still confused by the many claims and counter claims which have been and still are being made.

As a matter of fact, there is nothing particularly new about fowl paralysis. It was first described in central Europe in 1907, in this country in 1914, in the Netherlands in 1921, in Great Britain and Japan in 1930, and it is now widespread in countries all over the world including Australia, New Zealand, parts of Africa, etc. It is interesting to note that in many cases when the disease first arose in a country it arose suddenly and spread rapidly.

It has been suggested that the disease is due to a vitamin deficiency in spite of the facts noted above and that it usually first becomes evident when the birds are on the range getting the highest vitamin intake which they will receive at any period of life, a time when they are receiving a large amount of grain (often as high as 70 per cent, of which a considerable amount is whole wheat containing the germ) luxuriant green grass, plus mashes fortified with materials carrying an ample supply of every known vitamin known to science at the present time.

### Less Paralysis in Confinement

It is rather interesting also to note that we are less likely to find this disease present in birds raised in total confinement, as in battery or cage plants, under conditions of strict sanitation, than we are to find it in range-reared flocks. We have many times divided lots of chicks and put part of them on the range and part in batteries to find later that we had little or no paralysis show up in the battery-reared birds, while those on range showed serious loss in spite of their admittedly more nearly perfect environment from a nutritional standpoint, since they had not only the prepared rations, but also splendid grass and alfalfa ranges, natural insects, etc., to consume.

Some have suggested that the strain of heavy egg production undoubtedly has so raised the demand for vitamins, minerals, and other essential nutrients that the resistance of the birds is greatly decreased and we will have to recalculate and build up our nutritional reserves all over again if we are going to enable these birds to resist paralysis, even if it is an infectious disease. That might be an interesting line of argument except that cockerels on the range who never laid an egg in their lives, and never will, have died from paralysis, by the dozens, time after time, and long before they were under any strain from breeding. As a matter of fact, pullets also may succumb considerably before they lay their first egg, and it is a well known fact that in any flock where paralysis puts in an appearance, it usually occurs first when the birds are on the range, or just about the time they are getting ready to lay, and that the greatest loss is usually during the first few months. After cold weather, the mortality rate invariably drops, in spite of the fact that the birds are laying at a higher rate and have been laying over a longer period. If this is a deficiency disease, it ought to grow worse rapidly under the strain of heavy egg production until the entire flock is wiped out in a relatively short interval. Instead, it usually tapers off so that only a lingering case, now and then, shows up after the earlier and heavier losses are over.

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(Poultry Item, February and March, 1939)

### Confused Diagnosis

Birds can fall down helpless or apparently paralyzed and may even drop one or both wings, or drag a leg as a result of many different ailments. Intestinal coccidiosis, tapeworm infestation, retained soft-shelled eggs, tuberculosis, septic joints, various forms of rickets, vitamin G deficiency, encephalomalacia of one type or another, impacted crop or gizzard, ordinary rickets, and a variety of other conditions may be and often are confused with true fowl paralysis, particularly by those who are not technically trained and equipped to make exact distinction.

In making a search of the available material therefore we must begin by insisting that everything be ruled out which is not backed up by technical data from authoritative sources. Even some of the so-called scientific reports which have appeared can be criticized on that score and it is very evident that some of the earlier ones, particularly, were a little vague about just what disease they were actually working with; and certainly that sound methods of statistical analysis were not always applied.

If we eliminate all the early reports and consider only the material which has appeared in the last three years from authoritative sources, we shall have a very considerable mass of data.

### 1936 Idaho Report

In the May 1936 issue of Poultry Science Drs. Gildow, Williams and Lampman of the Idaho Station reported on a series of experiments on the transmission of fowl paralysis (lymphomatosis). They refer to earlier reports by Patterson, Wilcke, et al of the Veterinary Research Institute at Iowa State College showing that fowl paralysis was readily transmitted to baby chicks by introduction of a suspension of affected organs. Also similar results by Dr. E. P. Johnson of the Virginia Station in 1934. There was a similar report by Dr. F. B. Patterson, H. L. Wilcke and co-workers in 1932. The Idaho co-workers reinforced the earlier reports and their work showed that:

"1. Fowl paralysis is readily transmitted by pen contact from affected to non-affected chicks.

"2. The disease develops to a less extent in chicks from an affected flock than in chicks from a non-affected flock when brooded together.

"3. The disease is more prevalent in chicks from pullet breeding stock than in those from hen breeding stock from the same affected flock.

"4. Evidence of variation in inherited resistance is apparent in different families."

### Virginia Report—1936

Drs. E. P. Johnson and W. B. Bell in the Journal of Infectious Diseases No. 3, 1936, reviewed a piece of research work which they had carried on at the Virginia Station and their report brought out again and further substantiated some earlier reports that fowl paralysis is due to a filterable agent, probably a virus. These investigators stated that–"Our filteration experiment gives no support to the claims that leucosis is due to bacteria or to intestinal parasites. These results, on the other hand, demonstrate quite clearly that the causative agent of the various forms of leucosis is filterable through membranes that retain (such bacteria as) Salmonella pullorum."

### Ohio Report 1936

Under the title of — "Eight Years' Experiences with Losses of Pullet Layers," Dr. D. C. Kennard and V. D. Chamberlin of the Ohio Station, reviewed some of the results which had been reported by them previously over the 8 year period.

They found that where laying and breeding flocks on a farm were infected with the disease, it was exceedingly difficult to raise pullets that would be free from the disease if the birds were raised on the same farm. By shipment of the day-old chicks to other farms where the chicks and pullets were raised without exposure to the infection, however, they were able to raise birds which afterward went through the laying year with little trouble from paralysis.

The Ohio workers found that where there had been serious losses from paralysis on certain farms that this was "apparently stopped by disposal of all the older birds which had served as carriers, before chicks or pullets were again brought to these farms."

The work done at Ohio indicated that the breeders at the Experiment Station did not transmit the disease to their offspring, but that the offspring picked it up during the growing period, since if they were shipped away to uninfected premises as soon as they were hatched, they grew up showing very little loss.

Losses from paralysis were heavy where the chicks were kept on the same farm even when the old birds were housed or yarded separately, and even if the chicks were brooded and reared on fresh range a quarter of a mile away and "entirely segregated from all other chicks."

This report also emphasizes that "ready-to-lay pullets or pullets about five months of age were either resistant or immune to the disease since in eight different instances such pullets failed to acquire the disease either from infected pullets or from infected soils or premises."

### Clean-up Suggested

The investigations at Ohio seem to indicate that if the soil and premises were kept free from chickens for a period of two to four weeks, following a thorough cleaning, that baby chicks could then be brought on to the place and reared without much danger of developing the disease.

The Ohio investigators had shown in previous reports that losses from chicks produced by old hen breeders were far lower than chicks produced by pullet breeders. No doubt this was due to the fact that susceptibility to paralysis was quite high in many of

the pullet breeders used and this was passed on to the chicks, whereas old hen breeders had demonstrated their relative immunity to paralysis by living and laying through more than a 12-month period before they were used as breeders.

Anyone who has had much to do with disease control knows that disease, or rather the intensity of any disease is due to the inter-action between two factors, namely the resistance it encounters in the host and the intensity of the original infection.

If resistance is low and the intensity of the original infection is high, the disease will be very severe, whereas if the original virulence of infection is low, or the resistance is high, only mild infection will result.

### Health Best Safeguard

In the same way we may suppose that actual deficiencies in vitamins or other nutrients might so lower resistance as to increase the virulence of paralysis infection as it would with many other infections, but this does not by any means indicate that our main avenue of attack on paralysis should be through nutrition any more than we should attempt to control small-pox or scarlet fever or influenza by nutritional means. Naturally any subject that is well nourished will have greater vigor to throw off infection, but we don't expect to stop an epidemic of small-pox or influenza by stepping up the vitamin potency of the diet, and it seems quite unlikely that we shall be able to do any such thing in the case of paralysis.

Neither does it indicate that we shall necessarily be immediately successful in eliminating paralysis by breeding only from hens. Unquestionably, if we continue breeding from the same stock long enough, the susceptible birds will eventually be eliminated and we will have stock left that is practically immune to paralysis and will pass along this immunity to their progeny.

There are many flock-owners that have gone through this severe paralysis infection and have continued breeding from their own stock without bringing in any outside blood until they have finally developed a strain that is relatively immune. However, this involves a great deal of expense and the loss of considerable income over a period of years. As a matter of fact, trapnesting, pedigree breeding, and progeny testing must all play a part in this if the very best results are to be obtained, and this is all very expensive work for the breeder.

The work done at Ohio illustrates a quick method of getting rid of the trouble without reducing earnings for more than a short time. Indeed if ducks, turkeys, or some other type of fowls are brought on to the farm as soon as the mature chickens carrying the paralysis infection are disposed of, it would be possible to keep the income from the farm almost up to the expected level until such time as it is again safe to bring chickens on the place.

This would be similar to a plan often used in England when heavy worm infestation exists in poultry yards and on ranges. The poultryman gets rid of his chickens or keeps them closely confined in houses and runs ducks on the land for one or two growing seasons. Invariably, his worm troubles are eliminated and he can put chickens back on to the soil again with little chance of worm infestation developing. This, of course, is due to the fact that the ducks are good foragers, and at the same time, they are extremely resistant to worm infestation.

In view of the results at Ohio there is some question as to just what can be done by poultrymen who are living in one of the intensive poultry centers. Whether they would be able to get very long continued freedom from paralysis by the above system of control would be questionable since neighbors with infected flocks would be so close. It may be that in such intensive centers the answer to the problem is the battery system where much more strict sanitary control is practicable than on ordinary floor type plants. While there are some disadvantages to the battery system, it may be possible that the development of losses from fowl paralysis and other serious diseases may compel the adoption of battery or cage type of management in order to eliminate disease already present on the place and to prevent infection coming in from neighboring plants.

### English Report—1936

In the Veterinary Journal (England) Volume 92, No. 9, Dalling & Warrick reported some observations on fowl paralysis. They noted that clinical and histological evidence of lymphomatosis may be found in fowls in ages varying from two to over thirty-eight months, and there was some evidence that injection of tissues from affected birds into healthy normal stock may play a part in transmitting lymphomatosis. In their work they did not find that lymphomatosis was transmitted by contact from chicks or adults.

The authors did reach the conclusion that lesions of lymphomatosis may be found in practically all tissues including those of the nervous system, or that in other cases they might occur only in the nervous tissues or in other tissues, or in both in the same bird. Their conclusions are contrary to the position taken by some exponents of the vitamin E theory of paralysis control, that the mesodermic (middle tissues) only are involved.

### Virginia Report—1937

In the July issue of Poultry Science 1937, Dr. E. P. Johnson of the Virginia Experiment Station reported on the "Transmission of Fowl Leucosis." This is one of the most interesting reports which has appeared from the standpoint of the practical control of fowl paralysis. Dr. Johnson found that the ordinary red mites are capable of transmitting the leucosis agent from affected birds to healthy birds under conditions close enough to those that would occur on a commercial poultry plant to indicate that probably red mites are very active in spreading fowl paralysis in flocks where there are a few infected birds and where red mites are present in any considerable numbers in the poultry house.

This, of course, emphasizes the necessity of the use of Carbolineum or one of the effective red mite paints so that there may be no red mites to spread the disease. No matter how many other precautions are taken, such as frequent changing of the litter, etc., transmission of the disease will occur so long as red mites are present in the house, and there is an infected bird in the flock, even though the infected bird may at the time show no signs of the disease.

Dr. Johnson's report also indicated that the leucosis agent may be transferred mechanically by fowl-pox vaccination, from a leucotic bird to several well birds in the flock during the common procedure of vaccination by the brush or follicle method. Whether infection would be as likely to occur or transmission as widespread under the conditions which occur when the "stick" method is used, we have no means of knowing, but probably transmission would be somewhat less.

There should be further investigation along this line, particularly to indicate whether there is any practical method of eliminating transmission when the brush method of vaccination is used, and whether wiping the knife or the needles on sterile cotton or gauze might not eliminate any possibility of transmission where the stick method is used.

### Massachusetts Report—1937

In the Experiment Station Record for November 1937, the Massachusetts Station bulletin No. 337 (1936) containing the report on: "Observations and Experiments with Neurolymphomatosis and Leucotic Diseases" by Dr. C. S. Gibbs was reviewed.

In this report Dr. Gibbs emphasized that "chickens under a year old are more susceptible than older birds." Three disposing factors appear to be mites, warm weather, and overcrowding. Dr. Gibbs agreed that erythro leucosis and myelo leucosis are filterable virus diseases, but reported lympho leucosis and neurolymphomatosis are due to a certain type of cell found in the tissues, usually in the liver and spleen, and also floating free in the blood of affected chickens. His evidence indicated that neurolymphomatosis was transmitted by this cell being carried through the egg from the infected hen, and possibly from the breeding male, to the chick. He pointed out, however, that transmission through the egg, "may not be the only way, or even the most important way in which the disease is spread."

It should be pointed out that most investigators now agree that all types of leucosis, including neurolymphomatosis, are caused by the same filterable agent and that inoculation of healthy birds by material from affected birds often produces a different type of the disease from that found in the original host.

### Russian Report—1937

In the transactions of the All Union Institute of Poultry Industries of USSR at Moscow, Tome 3, Vol. 3, No. 1, we find a report on Neurolymphomatosis of Fowls by E. A. Petrovskaya.

This investigator concludes that neurolymphomatosis of fowls is a disease varying widely in clinical cases but that the chief forms are shown when the bird becomes paralyzed in the legs, and also the eye form (optic paralysis). The transmissibility of neurolymphomatosis in the experiments reported by this author was decidedly proved not only by observations during epidemics, but also by straight experiments including the incubation of eggs from diseased birds, by contact transmission, and by experimental inoculation.

### Idaho Report—1938

The January issue of the U. S. Egg and Poultry Magazine, Volume 44, No. 1, presented "The Transmission of Fowl Paralysis" by Drs. Williams, Gildow, and Lampman of the University of Idaho, summarizing the series of investigations which the authors had carried out over a period of years.

This report showed that fowl paralysis is transmitted by contact. In three years' time, breeding from paralysis infected stock alone, the occurrence of the disease decreased from 31.1 per cent in 1933-34 to 7.6 per cent in 1936-37, whereas the occurrence of paralysis in the progeny from paralysis-free stock was practically the same in all three years, running from 41.6 per cent to 43.3 per cent.

Again in this series of experiments hen-hatched chicks showed appreciably less loss from paralysis than pullet hatched chicks, the males mated to both the hens and the pullets being of the same age and of the same breeding. If old males had been used with the hens, an even greater decrease of paralysis in the progeny might have resulted.

The chicks involved in this experiment were all pedigree hatched and it was found that there was a marked difference in the occurrence of the disease between the progeny of various males as well as between the progeny of various hens mated to the same male. Particularly outstanding from a livability standpoint was the progeny from one particular hen.

The Idaho Experiment demonstrated that there was no significant difference in the way paralysis occurred in birds where the chicks were brought on to the infected farm as day-old chicks even though the greatest care was taken to see that these different lots of chicks did not have a chance to come into contact with any of the infected birds or premises until they were two, four, six, or eight weeks of age, but when the chicks were reared off the farm on uninfected premises and then brought on to the farm much later, there was distinctly less paralysis.

### Connecticut Report—1938

In the Experiment Station Record, January 1938, there appears a review of Connecticut (Storrs) bulletin No. 218 (1937) covering studies on fowl paralysis this one being No. 2 on "Transmission Experiment" by Dr. E. Jungherr. In this report the investigator stated that "out of seven transmission trials with material from typical cases of fowl paralysis, six transmissible strains of the disease were established, four of which carried through repeated passages." Including all failures and recovered birds among the "no takes" the injection of 128 chicks resulted in 38.2 per cent "takes" in contrast with the spontaneous appearance of the disease of 1.4 per cent among 144 control birds.

In this report no evidence was obtained for the existence of a common causative agent for lymphomatosis and typical erythro or myeloid leucosis. The transmissible factor of lymphomatosis was found to be of an ultramicroscopic or filterable agent, and to withstand artificial drying for periods up to 82 days. It was shown to be present in the blood, bone marrow, nerves, and in the affected iris of diseased birds. Fresh manure and manure dried for a period of not more than seven days contained the causative agent occasionally. It was remarked that natural transmission "through this agent must be considered as being within the realm of possibility."

### Louisiana Report—1938

At the annual meeting of the Poultry Science Association in August 1938, Drs. C. F. McClary and C. W. Upp of Louisiana State University described experiments carried out by them on the eye type of paralysis, and found that the eye type of paralysis is transmitted through the egg and also by contact. The occurrence of eye paralysis was also found to be higher in the progeny of affected parents. Eggs of the isolated group were immersed in chlorine water for one to two minutes immediately before being placed in the incubator so as to eliminate the possibility of carrying the infection on the outside of the egg. The hatchability of the eggs was not lowered by this treatment.

### Iowa Report—1938

Also, at the annual meeting of the Poultry Science Association a report

on "fowl leucosis" was presented by Drs. C. D. Lee and H. L. Wilcke of the Veterinary Research Institute at Iowa State College.

Their own summary is as clear as any.

"Fowl leucosis is used as a proper term designating that group of leukemic, aleukemic, and leukemia-like diseases of fowls commonly referred to as 'Range Paralysis,' but also known by a variety of names, each more or less adequately describing the principal symptoms of some type of the disease. A wide variety of tissues are affected in the various forms of fowl leucosis and the systems and lesions are even more varied. The extension of the disease is slow and the result practically always death, but the course varies over wide limits from acute to a chronicity of one or more years.

"Fowl leucosis is differentiated into three types — myeloid, erythroid and lymphoid, which is further differentiated as nerve type, eye type, and visceral lymphocytoma, according to the site of the lesion, but these types may merge into one another, or two or more types may be present in the same bird at the same time. The onset of any type may be gradual or sudden and the course of all types is variable.

"Results of several transmission experiments fully confirm previous experiments and support the general opinion held that—

"No. 1. Younger birds are more susceptible than older birds.

"No. 2. The disease is caused by a filterable virus and may be transmitted by injection of infected tissues and by contact with affected birds and infected premises.

"No. 3. Fowl leucosis is one of the most important diseases causing adult mortality.

"No. 4. Several methods of control based on sanitation and careful selection of breeding stock, have given a degree of success in control of the disease."

### English Report—1938

Dr. A. H. Fraser of the Rowett Research Institute in a paper given at the Harper-Adams Poultry Conference in the summer of 1938 and reported in the August 12th issue of "Feathered World" agrees very decidedly with the report by investigators at Iowa, Ohio Experiment Station, and others as noted above. Dr. Fraser's conclusions from the investigations at the above named Institute are that: "Fowl paralysis is an infectious disease, to which chickens are highly susceptible, and to which older birds are relatively immune." The experiments at the Institute covered a period of three years, and it is interesting to note that at Rowett, as with investigators at Ohio, they have been able, "by taking day-old chicks on to clean ground away from all other poultry, to establish a thriving colony of young stock from what they could designate only as 'hen wreckage'."

Dr. Fraser refers again to the belief prevalent some years ago in this country that fowl paralysis and coccidiosis were related. He says—"we know, of course, that severe coccidiosis can occur without fowl paralysis. We know, too, that cases of fowl paralysis have been recorded in the total absence of coccidia. Yet in many cases, as in some of our own experiments, the occurrence of fowl paralysis and of coccidiosis appear to be correlated. How can we explain that correlation? I think it quite possible that the conditions of bad sanitation and of overcrowding which favor coccidia might also favor any other infective organism, including the infective factor for paralysis." (Earlier coccidiosis may also greatly reduce resistance to paralysis infection.)

### Helpful Suggestions

It seems to the writer that it is impossible to make a thorough study of the research work that has appeared without coming to the conclusion that these diseases which we group under the heading of "Fowl Leucosis" are certainly highly infectious and that for a long-time control the answer is certainly breeding to develop immune strains. This, of course, means trapnesting, pedigree hatching, progeny testing, and is an expensive process suitable only for Colleges, Experiment Stations and the breeders who are able to stand the financial strain.

For the practical poultryman it appears that when severe paralysis exists on a farm, the best thing is to sell off all the stock and raise ducks or turkeys for some months, at least, before starting with chicks again. In the meantime, of course, thorough cleaning and disinfection and cleaning up of rubbish around the premises is necessary.

When buying chicks it might seem best to purchase from a flock which has never suffered from any form of leucosis. This advice has been frequently given in the past and is still being given by some poultry specialists. It may be suitable advice in some sections, but we question very much whether it is good advice in most sections. The difficulty is in finding a breeder who can honestly state that his flock has not and never has had any form of leucosis. Personally, we would feel much safer to buy chicks from a flock which has admittedly been through a period of heavy losses from the disease, but which has had little serious loss during the preceding two years. This would indicate, of course, that the breeder had practically developed a high degree of immunity and there would likely be little loss from fowl leucosis of any type, whether carried through the egg or whether by infection picked up later.

## *Hens at Cornell University Lay Blue Eggs*

The goose that laid the golden egg has nothing on the hens in the poultry department at Cornell that lay colored eggs consistently.

The eggs are delicate blue in color, produced by hens from a cross between an Araucana (Chilean breed) and a White Leghorn. The Chilean Araucana and the Colondona of Costa Rica lay eggs of a deep blue color.

So says Dr. J. H. Bruckner, a member of the research staff in the poultry department.

When hens that lay white eggs are crossed with these birds that produce blue pigments, eggs are produced with a pale blue pigment. When crossed with hens which lay eggs with a brown pigment, he explains, the dominant blue pigment produces an olive color.

In a purebred bird, such as the Araucana, the blue coloring extends all the way through the shell. This is not true of the brown pigmented egg, according to Dr. Bruckner.

—News Release, Cornell University.

# QUESTIONS AND ANSWERS

## Causes of Molt

**Question**—About 10 per cent of my pullets are molting. Is that any indication of poor quality? Should they be marketed or held over?—C. F. R., Me.

**Answer**—When a flock goes into a molt at this time of year, it usually indicates that some of the pullets were not fully developed when they started to lay or that something was wrong with the manner in which they have been cared for since they started to lay. If some of your pullets are molting because the care and management they have received have been faulty, then possibly the best birds in your flock have been affected. On the other hand, if the pullets that are now molting laid too early and before they were fully developed, it might be advisable to dispose of the birds that are now molting.

—Poultry Tribune.

## Fresh Feed Consumed More Readily by Layers

**Question**—Is there any truth to the statement that birds like fresh feed better than feed that has been in the hoppers for some time? I have been using wall hoppers and my neighbor says that it is probably the reason my birds are not laying well.

**Answer**—Although, of course, there may be other reasons for your poor production, nevertheless, it has been demonstrated quite clearly in experimental work that birds prefer the open-type mash hoppers to the storage type, regardless of whether they are on the walls or in the middle of the pen. This has been proven when equal numbers of feet of feeding space were available at both types of hoppers. The greater mash consumption from the open trough hoppers was undoubtedly due to the fact that they had to be replenished more frequently, and therefore, fresher feed was available. Another reason for feeding the mash frequently and not buying large quantities in advance of need is that certain nutrients in the feed deteriorate upon storage. There is also the possibility that the wall hoppers you have do not supply enough feeding space per bird. There should be 20 feet of mash hopper space for each 100 birds.

—Gordon E. Bearse in Washcoegg, Feb. 1939.

## Concrete Block Poultry Houses

**Question** — Kindly advise me if a concrete block house would be too damp? Would it be alright with a concrete floor?—L. H., Pa.

**Answer**—We do not run across concrete block poultry houses very frequently, which indicates that they are not very popular among poultry raisers, but if the house is located on a slightly elevated location where ground moisture will not be a factor and there will be a good circulation of air, a concrete block poultry house should work out satisfactorily. Providing you have a very good foundation under the floor so that no moisture can work up, a concrete floor should be alright and it certainly would be easier to keep in good condition than any other type of floor. Of course, good ventilation is very necessary to carry off moisture from this type of house.

One prominent Pennsylvania poultryman, who has both concrete block and cinder block laying houses, finds both of these working out very satisfactorily. He says that considering the fact that these houses do not have to be painted, the construction costs do not vary greatly from those of good wooden houses, and the block houses are fire-proof and more permanent than wooden houses.

—Everybodys Poultry Magazine.

## Production Controls Molting

**Question** — I was compelled to change feed on my chickens and they have dropped in production and are molting. Will they molt again this fall?—L. V. C., Ia.

**Answer**—When a flock of pullets or laying hens is thrown into a molt for any reason during the winter, spring, or even as late as early summer, these birds will come back into production again usually in about six weeks, but will nearly always molt again in the fall or early winter. It is rare that a flock will not go through a complete molt the next fall. However, a late spring or early summer molt usually may retard the fall molt until later in the season. This will depend quite largely upon the way the flock is handled. A molt at this season of the year can be brought on quite readily by any method of handling the flock that would throw them out of production. It is production that controls or prevents molting and not molting that controls production.

—Poultry Tribune.

## Breeding Ducks and Geese

**Question** — Are three ducks too many to keep with one drake? How many geese can you keep to mate with one gander. How can you tell the ducks from drakes? Is it advisable to keep the ducks and drakes from same flock the first year?—Mrs. L. K., Mich.

**Answer**—Three ducks are not too many to keep with one drake. As a matter of fact, you can keep four ducks with one drake very satisfactorily early in the season, and you can increase this to as many as eight ducks later in the season, that is, late in the spring.

With geese it is different. I would suggest mating no more than two geese with one drake, and even this may not work, for geese are different in their mating habits than other kinds of fowl and sometimes one gander will mate with one goose only and this mating may be for life.

It is usually possible to distinguish the drake from the duck by the means of two small curled feathers down near the tail which are called sex feathers.

It is all right to mate ducks and drakes from the same flock the first year if you wish.

—American Poultry Journal.

THE EMBLEM of a crowing cock, as it appears on the coat of arms of France, is not because of the cock's fighting qualities, but because the early Christians had the same idea as the Egyptians, that it was supposed to say "Glory be to God," and also to announce the Dawn of a New Day.

—Ralph H. Moore in Poultry Item for March, 1939.

# VIEWS OF THE EDITORS

## Teaching the Teachers

Recently we were talking to a woman who took the Domestic Science course at an eastern college about ten years ago. We were talking about ways to increase the use of eggs and poultry meat. She recalled that in one of her courses the teacher said that the only safe time to buy frying chickens (broilers) was in May or June. The rest of the year they would probably be storage.

Undoubtedly a large number of Domestic Science teachers, particularly those who come up from cities and are not close to farming and poultry sections, are still giving out that kind of information. How is the public to know and become acquainted with fresh broilers year around if the teachers at the colleges are not familiar with what is going on in this industry? And after all, whose fault is it if they don't know? They should know from their own experience, of course, but if they don't, someone in our industry should see that they are told.

The damage done is almost permanent for this reason: Notes taken by students and mimeographed sheets used in courses at colleges are filed by the students and used by them in their teaching work after they get out of college. Thus the influence of one uninformed teacher is spread out fanlike over many thousands of teachers and thousands more consumers.

Twenty years ago the National Dairy Council started a campaign of education that has spread into all the schools and to millions of consumers. They did it carefully, basing everything on scientific facts and giving all foods, in addition to dairy products, the credit that was due them. About 14 years ago, the Livestock and Meat Board started its very effective work in educating the public to use more meats. Meats were being pushed off the American table by lighter foods.

The same thing is happening in eggs and poultry meat today—not for the same reason, but with the same result. How long before we will recognize what is happening and organize our forces to teach the teachers and the millions of new consumers that are coming into the market field each year?

—Poultry Item, March, 1939.

## Changing Times

Reliable sources inform us that there were over one million less children in 1938 in the grade schools of the United States than there were in 1930. Such a fact should make us ponder seriously our problem of expanding the use and uses of eggs and poultry meat. Children are heavy eaters and not so critical of preparation. Catering more largely to adults will necessitate better flavored products, better preparation and cooking, and more effort at making egg and poultry dishes more tempting.

—U. S. Egg and Poultry Magazine, March, 1939.

## Perpetuating Surpluses

There is a lot of merit in the argument that government purchases of eggs for relief open new outlets among people who are not regularly using eggs. Such people may become more regular users of eggs after they no longer need government assistance. Furthermore, eggs represent an economical food buy at almost every time of the year, and there is no reason why they should not be included in the diets of those who are receiving assistance.

But the mere fact that the government is buying up butter, cotton, citrus fruits and other farm products is no reason why the poultry industry should take on a hurt expression and say that it has been slighted because of the failure of the government to buy eggs.

Although government buying of farm commodities is done for the purpose of relieving a condition of surplus, results in the past seem to indicate that it merely serves to perpetuate the surpluses.

—Everybodys Poultry Magazine, March, 1939.

## Industry Figures Swell

Something like the experience of looking at a house plan and later seeing the finished building is ours this month as we examine the new government figures on poultry population and poultry income.

When numbers are turned into dollars, we begin to appreciate the importance of any commodity or problem. That is the situation now since the government has converted its revised estimate figures into dollars and informed us that whereas previous estimates showed the gross income from chickens and eggs to have been $876,000,000 in 1936 and $884,000,000 in 1937, the new estimates indicate gross income to have been $1,028,000,000 in 1936 and $1,024,000,000 in 1937. The poultry industry definitely is over the billion dollar mark in national value.

These new estimates place chickens and eggs definitely in second place in gross income among the major farm commodity groups in five of the last seven years. If turkeys, ducks and geese are added to the income from chickens and eggs, the poultry industry is in second place in six of the last seven years.

Estimates of the average consumption of eggs and poultry also have been revised sharply upward. It is estimated that in 1937, residents in the United States consumed an average of 21.4 pounds of poultry, as compared with the old figure of 17 pounds, and consumed 304 eggs per person as compared with the previous estimate of 216 eggs per capita.

There are those who have said somewhat disparagingly, "Chicken money is just pin money to the farmer." But these new figures provide a positive answer to such slighting assertions. Of course, the best answer can be given by you hundreds of thousands of poultry raisers who know how much the poultry flock on your farm does to provide ready cash, not only for the necessities of life, but also for home and farm improvements.

At last the lowly hen has come into her own and you who husband her should pay her the respect she deserves!

—O. A. Hanke, Poultry Tribune, Feb., 1939.

## Important Egg Deal Objectives

While it still is too early to get a clear idea of just what price bases during the coming flush egg producing season would be considered safe, or reasonably so, by the majority of the industry, the general temper of the

trade tends very markedly toward conservatism. This is clearly indicated both by sentiment reflected so far in spot and futures operations at leading distributing points, and also in ideas expressed and exchanged at those interior conventions so far held.

All forecasts, based on reports to the federal crop reporting board at Washington and to private interests alike, clearly indicate a combination of influences bearing on production which must surely result in a marked increase in the 1939 lay. General anticipation of the prospective gain in the total volume of production this year as compared with 1938 can probably be summarized as falling within a full range of 8 to 15 per cent, and an even larger expansion is looked for in some quarters.

It is certain that the quantity of eggs turned out this spring will be far in excess of the same period last year. The volume of surplus having to be placed in the warehouses for later use will naturally depend in major degree on prices in effect at leading distributing centers, and the force of the efforts all along the line to move currently produced eggs into consumptive channels. Bearing on this vital phase of the deal's development will be the presence or absence of governmental surplus-removal and relief-distributive operations.

Three things stand out clearly: The importance of seeking a level of spring values which will induce the freest possible immediate use of the seasonal flush; the necessity of avoiding contract arrangements tending to force unwilling storing on a heavy scale; and the necessity of setting up and getting into actual operation as soon as practicable a broadly organized, widely backed and efficiently operated nationwide industry program of sustained egg and poultry publicity.

—The American Produce Review, March 1, 1939.

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*Here Are Partial Results of a Two-Year Study of . . .*

# Out-of-Season Hatching

*Reprinted from Featheredfax*

OUT of season hatching studies covering a two year period were reported by Professor Fred P. Jeffrey of the Poultry Department of New Jersey Agricultural Experiment Station at the New Jersey Baby Chick Show. The figures cover a two year period of hatching Leghorns on January 15, April 1, June 15, September 1, and November 1. Professor Jeffrey stated that the tests are still considered incomplete and are given only as a preliminary report.

The chicks were all brooded under electric brooders and allowed free range when the weather permitted it.

Featheredfax, Feb. 1939. Published by the Poultry Husbandry and Veterinary Science Departments, Massachusetts State College, Amherst, Mass.

The chicks were weighed every two weeks during the growing period. A laying mash was fed from start to finish. Grain was hand fed for the first 6 weeks. From 6 to 24 weeks the chicks were hopper fed grain and mash. In the laying house, the birds were allowed free choice of mash, cracked corn, and whole oats. All eggs were weighed and 15 hour artificial lights were maintained.

Rate of growth figures showed the average weight at 6 months of pullets hatched at the different times to be: January Hatch 3.1 lbs., April Hatch 2.9 lbs., June Hatch 2.9 lbs., September Hatch 3.0 lbs., November Hatch 3.3 lbs.

**Feed Consumption—Mortality and Broiler Prices—2 year Summary**

|  | January Hatch | April Hatch | June Hatch | September Hatch | November Hatch |
|---|---|---|---|---|---|
| Feed Consumption per pullet 6 mos. | 20.6 lbs. | 18.8 lbs. | 18.7 lbs. | 21.9 lbs. | 22.3 lbs. |
| Mortality for first 6 mos. | 15.3% | 16.3% | 11.8% | 8.8% | 16.4% |
| Broiler Prices—Flemington, N. J. | 19.3¢ | 16.3¢ | 20.3¢ | 19.0¢ | 19.3¢ |

**Cash Costs of Producing Pullets**

| Date of Hatch | Chick Cost | Brooding Cost | Total Feed Cost | Income from Broilers | Cash Cost Per Pullet Produced |
|---|---|---|---|---|---|
| Jan. 15 | $48.00 | $21.70 | $73.47 | $49.62 | $0.81 |
| April 1 | 45.00 | 12.84 | 70.80 | 42.07 | 0.81 |
| June 15 | 42.00 | 6.90 | 82.50 | 60.59 | 0.50 |
| Sept. 1 | 45.00 | 11.76 | 96.99 | 54.07 | 0.74 |
| Nov. 1 | 48.00 | 19.29 | 74.50 | 47.62 | 0.87 |

**Egg Production, Egg Size, Market Returns, and Estimated Profit**

| Date of Hatch | Annual Egg Production | % Large Eggs | Laying House Profit (Egg Receipts-Feed Cost) | Sale Value of Fowl at end of Year (Mortality Considered) | Fowl Prices (Flemington) | Net Profit (Pullet Cost, Laying House Profit, Sale of Fowl) |
|---|---|---|---|---|---|---|
| Jan. 15 | 141 | 45 | $1.17 | $0.33 | 15.0¢ | $0.79 |
| Apr. 1 | 166 | 50 | 1.72 | 0.36 | 17.0¢ | 1.35 |
| June 15 | 162 | 41 | 1.72 | 0.31 | 17.9¢ | 1.53 |
| Sept. 1 | 152 | 41 | 1.66 | 0.48 | 19.9¢ | 1.40 |
| Nov. 1 | 149 | 38 | 1.62 | 0.30 | 18.7¢ | 1.05 |

**Total Egg Production and the Percentage of Large Eggs**

|  | Aug.-Nov. |  | Dec.-March |  | April-July |  |
|---|---|---|---|---|---|---|
| Date of Hatch | % Egg Prod. | % Large Eggs | % Egg Prod. | % Large Eggs | % Egg Prod. | % Large Eggs |
| Jan. 15 | 36 | 42 | 41 | 78 | 46 | 31 |
| Apr. 1 | 38 | 21 | 48 | 63 | 51 | 60 |
| June 15 | 31 | 64 | 48 | 31 | 53 | 48 |
| Sept. 1 | 41 | 67 | 31 | 51 | 52 | 30 |
| Nov. 1 | 43 | 50 | 38 | 80 | 50 | 10 |

# POULTRY STATISTICS

## Hens on Farms — Rate to Lay

**Number of Hens Per Flock, and of Eggs Laid Per Hen and Per Flock, First Day of Month**

| Geographic Division | Layers per flock |  |  | Eggs per 100 layers |  |  | Eggs per flock |  |  |
|---|---|---|---|---|---|---|---|---|---|
|  | Dec. 1 of previous year | Jan. 1 | Feb. 1 | Jan. 1 | Feb. 1 | Aggregate Jan.-Feb. | Jan. 1 | Feb. 1 | Aggregate Jan.-Feb. |
| North Atl. |  |  |  |  |  |  |  |  |  |
| 1928-37 (Av.) | 92.5 | 96.9 | 94.9 | 24.4 | 31.8 | 56 | 23.7 | 30.0 | 54 |
| 1938 | 94.5 | 96.7 | 95.1 | 32.0 | 38.1 | 70 | 30.9 | 36.2 | 67 |
| 1939 | 96.3 | 98.4 | 96.4 | 32.8 | 38.0 | 71 | 32.3 | 36.3 | 69 |
| North Cent. |  |  |  |  |  |  |  |  |  |
| 1928-37 (Av.) | 108.5 | 115.7 | 114.9 | 15.6 | 22.1 | 38 | 18.4 | 25.9 | 44 |
| 1938 | 98.0 | 102.4 | 103.5 | 20.5 | 30.0 | 50 | 21.7 | 31.4 | 53 |
| 1939 | 102.4 | 110.4 | 110.2 | 23.2 | 30.0 | 53 | 26.1 | 33.5 | 60 |
| South Atl. |  |  |  |  |  |  |  |  |  |
| 1928-37 (Av.) | 57.4 | 60.1 | 59.0 | 20.1 | 28.8 | 49 | 12.0 | 17.0 | 29 |
| 1938 | 52.5 | 55.8 | 54.6 | 25.7 | 32.2 | 58 | 14.3 | 18.2 | 32 |
| 1939 | 56.0 | 59.9 | 57.8 | 25.9 | 32.7 | 59 | 15.5 | 19.1 | 35 |
| South Cent. |  |  |  |  |  |  |  |  |  |
| 1928-37 (Av.) | 62.8 | 66.8 | 66.3 | 17.3 | 25.3 | 43 | 11.6 | 16.8 | 28 |
| 1938 | 56.6 | 59.3 | 60.3 | 20.3 | 33.3 | 54 | 12.2 | 20.0 | 32 |
| 1939 | 60.6 | 63.6 | 63.4 | 22.3 | 30.2 | 52 | 14.4 | 19.1 | 34 |
| Western |  |  |  |  |  |  |  |  |  |
| 1928-37 (Av.) | 71.4 | 74.0 | 73.4 | 22.7 | 29.7 | 52 | 16.2 | 20.9 | 37 |
| 1938 | 70.3 | 71.1 | 71.0 | 26.4 | 35.4 | 62 | 18.3 | 25.0 | 43 |
| 1939 | 71.1 | 72.6 | 70.5 | 27.1 | 37.5 | 65 | 19.6 | 25.8 | 45 |
| United States |  |  |  |  |  |  |  |  |  |
| 1928-37 (Av.) | 81.1 | 86.0 | 85.1 | 17.9 | 25.0 | 43 | 15.4 | 21.4 | 37 |
| 1938 | 74.4 | 77.6 | 78.3 | 22.7 | 32.2 | 55 | 17.8 | 25.3 | 43 |
| 1939 | 78.0 | 82.8 | 82.0 | 24.6 | 31.9 | 56 | 20.4 | 26.0 | 46 |

Continuing heavy production of eggs during January and heavy culling of flocks, leaving numbers of layers on February 1 about 5 per cent in excess of last year, are shown by the February 1 report of sample farm flocks.

A decrease of about 1 per cent in the number of laying birds occurred during January, compared with a gain of almost 1 per cent during January last year. Late hatchings of chickens were heavy in 1938 and ordinarily the addition of pullets coming to laying age during January would have resulted in a small increase in average number of layers per farm flock, as was the case last year. Low January egg prices, however, were responsible for a heavy marketing of both laying stock and of young chickens. As a result, the number of layers remaining on February 1 was only about 5 per cent greater than a year ago, while on January 1 they were almost 7 per cent greater. The decrease in layers during the month was greatest in the Atlantic and Far Western areas. For the country as a whole, the number of layers is still almost 4 per cent short of the 10-year (1928-37) February average, the shortage being about 6 per cent in the West North Central, and about 4 per cent in the South Central and Far Western areas. The North Atlantic area alone shows a gain amounting to almost 2 per cent above average.

Owing to the inclement weather in the latter part of January, the farm production of eggs per hundred layers, which during the early winter had far exceeded all past records for comparable dates, failed to show the usual seasonal gain. February 1 production per hundred layers was 1 per cent lower than the record high production shown a year ago. It was, however, higher than the February 1 average in any other year of the record beginning in 1925. Only in the Far West did the reported February 1 rate of production exceed last year's high figure and thus establish a new high record.

Although the rate of production per hen was less than a year ago, the total February 1 production of eggs, as reflected in average laying per farm flock exceeded that of last year by almost 3 per cent and the 10-year February average by 21 per cent. The production was in fact only 3 per cent below the previous high record for February 1 total production of eggs, established in 1933. Only in the South Central States did production fall slightly below the February 1 production of last year.

—Comment from Poultry and Egg Production Report.

## Egg Prices

**1939 Egg Prices at New York City**

| Kind | Feb. 3 | Feb. 10 | Feb. 17 | Feb. 24 | Feb. 24, 1938 |
|---|---|---|---|---|---|
| Mixed Color Firsts | 16¾-17 | 18¼ | 19 | 17½ | 18¼-19 |
| Nearby and Midwestern White Premium Marks | 24½-25½ | 24¼-25¼ | 22½-23½ | 21 -22 | 22¼-24 |
| Nearby and Midwestern White Specials | 23½ | 23¼ | 21¼-21½ | 19½-20 | 21¾-22 |
| Pacific Coast Specials | 26½-27¾ | 27 -27¾ | 27 -27¾ | 27¼-27¾ | 25 -25½ |
| Nearby and Western Brown Exchange Specials | 20 | 20½-20¾ | 21¼ | 19½ | 22 |

**Farm Prices of Eggs per Dozen**

(Figures given in cents)

| Year | Jan. 15 | Feb. 15 | Mar. 15 | Apr. 15 | May 15 | July 15 | Sept. 15 | Nov. 15 | Dec. 15 |
|---|---|---|---|---|---|---|---|---|---|
| Average 1925-34 | 31.0 | 24.0 | 19.3 | 18.7 | 18.7 | 20.0 | 25.7 | 35.4 | 35.7 |
| 1937 | 23.1 | 20.1 | 19.9 | 20.1 | 17.9 | 19.4 | 22.9 | 28.0 | 26.0 |
| 1938 | 21.6 | 16.4 | 16.2 | 15.9 | 17.6 | 19.9 | 24.9 | 29.0 | 27.9 |
| 1939 | 18.8 | 16.7 | | | | | | | |

Owing to the mild early winter weather and abundant feed supplies with resulting heavy production of eggs, January egg prices had fallen almost to spring levels before the stormy weather of late January slowed up the seasonal gain in production and firmed prices. Farm egg prices on January 15 averaged 18.8 cents for the United States compared with 21.6 cents last year and with a 10-year average of 25.9. Chicken prices averaged 14 cents compared with 16.7 cents last year and a 10-year January average of 15.1 cents. Turkey prices were higher than last year—18.3 cents compared with 17.5 cents, but below the 10-year average of 19.3 cents per pound.

—Comment from Poultry and Egg Production Report.

In contrast to the January trend of egg prices, relatively little change occurred in February. The drastic decline during January brought prices in Eastern markets to a level 2 to 3 cents below a year earlier and caused some concern not only with respect to current levels but also as to prices during the remainder of the season. This feeling in turn led to agitation in some quarters for the Government to enter the market as a buyer under the surplus removal program and to divert into relief distribution a portion of the current supplies reaching terminal markets.

—Comment from Monthly Egg and Poultry Markets Review.

## Poultry Meat Prices

**Farm Prices of Chickens per Pound**

(Figures given in cents)

| Year | Jan. 15 | Feb. 15 | Mar. 15 | Apr. 15 | May 15 | July 15 | Sept. 15 | Nov. 15 | Dec. 15 |
|---|---|---|---|---|---|---|---|---|---|
| Average 1925-34 | 16.8 | 17.2 | 17.5 | 18.2 | 18.3 | 17.8 | 17.3 | 16.2 | 15.8 |
| 1937 | 13.4 | 13.6 | 14.4 | 15.2 | 14.8 | 15.3 | 17.4 | 16.9 | 16.4 |
| 1938 | 16.7 | 16.0 | 15.9 | 16.2 | 16.1 | 15.0 | 14.3 | 13.6 | 13.6 |
| 1939 | 14.0 | 14.2 | | | | | | | |

## Receipts of Eggs and Poultry

**Receipts of Eggs at Eastern Egg Auctions**

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| February 4 | 24 | 25,926 | −7.03 | +20.88 |
| February 11 | 24 | 26,782 | −1.25 | +20.54 |
| February 18 | 24 | 28,327 | +3.24 | +19.53 |
| February 25 | 24 | 29,948 | +4.84 | +18.52 |

**Receipts of Eggs at Pacific Coast Primary Markets**

| Week Ending | No. of Plants | Cases of Eggs | | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| | | 1939 | 1938 | | |
| February 4 | 62 | 62,139 | 73,441 | +0.48 | −15.39 |
| February 11 | 64 | 62,702 | 76,900 | +0.11 | −18.46 |
| February 18 | 64 | 63,450 | 73,617 | +2.22 | −13.81 |
| February 25 | 64 | 62,022 | 74,155 | −2.22 | −16.36 |

The supply situation on fresh eggs to date this year has apparently had much to do in the matter of shaping market sentiment. In general, the weather has favored production except during the latter part of January; and with plentiful feed supplies, the natural result has been relatively heavy production. Thus, during January, receipts at terminal markets were relatively heavy, arrivals at New York and Chicago exceeding last year by more than 10 per cent. Marketings through country packing plants in the Central Western States also showed much greater percentage increases.

—Comment from Monthly Egg and Poultry Markets Review.

### Receipts of Eggs and Poultry at Central Western Primary Markets

| Week Ending | Cases of Eggs 1939 | Cases of Eggs 1938 | % Chg. | Pounds of Poultry (000 omitted) 1939 | Pounds of Poultry (000 omitted) 1938 | % Chg. | Pounds of Young Stock (000 omitted) 1939 | 1938 | % Chg. | Pounds of Fowl (000 omitted) 1939 | 1938 | % Chg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Feb. 4 | 70,797 | 76,438 | −7.38 | 1,177 | 1,955 | +11.33 | Discontinued until quantities available are larger. | | | 1,830 | 1,659 | −10.34 |
| Feb. 11 | 82,270 | 76,465 | +7.59 | 1,954 | 2,602 | −24.90 | | | | 1,660 | 2,292 | −27.58 |
| Feb. 18 | 93,342 | 89,076 | +4.96 | 2,057 | 2,188 | − 5.96 | | | | 1,758 | 1,946 | − 9.64 |
| Feb. 25 | 90,157 | 99,703 | −9.57 | 1,654 | 1,304 | +26.85 | | | | 1,433 | 1,132 | +26.55 |

### Receipts of Eggs (Cases) at 4 Markets*

| Geographic Sections | January 1939 | January 1938 | % change |
|---|---|---|---|
| New England | 41,604 | 31,712 | + 31.19 |
| Middle Atlantic | 165,153 | 145,741 | + 13.42 |
| South Atlantic | 19,022 | 17,458 | + 8.96 |
| East North Central | 219,187 | 161,568 | + 35.66 |
| West North Central | 448,546 | 352,259 | + 27.33 |
| South Central | 4,683 | 8,608 | − 45.60 |
| Mountain | 38,300 | 46,850 | − 18.25 |
| Pacific | 36,174 | 95,185 | − 62.00 |
| Miscellaneous | 295 | 390 | − 24.36 |
| TOTAL | 972,964 | 859,771 | + 13.17 |

### Receipts of Dressed Poultry (pounds) at 4 Markets*

| | | | |
|---|---|---|---|
| New England | 270,681 | 158,924 | + 70.32 |
| Middle Atlantic | 684,063 | 402,304 | + 70.04 |
| South Atlantic | 921,267 | 412,029 | +123.59 |
| East North Central | 3,651,156 | 2,053,756 | + 77.78 |
| West North Central | 12,645,169 | 9,234,347 | + 36.94 |
| South Central | 2,279,697 | 2,580,451 | − 11.66 |
| Mountain | 847,372 | 804,931 | + 5.27 |
| Pacific | 690,315 | 1,322,079 | − 47.79 |
| Miscellaneous | 0 | 0 | − |
| TOTAL | 21,989,720 | 16,968,821 | + 29.59 |

* New York, Chicago, Philadelphia, and Boston.

## Egg-Feed Ratios

### New York Egg-Feed Ratio

| Weed Ending | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1939 | 1938 | 1937 | Av. Egg Price per Doz. (Dollars) 1939 | 1938 | 1937 | Av. Feed Cost per 100 lbs. (Dollars) 1939 | 1938 | 1937 |
|---|---|---|---|---|---|---|---|---|---|
| February 2 | 8.4 | 8.6 | 10.0 | .196 | .217 | .242 | 1.65 | 1.85 | 2.48 |
| February 9 | 8.0 | 9.0 | 10.6 | .207 | .206 | .242 | 1.65 | 1.85 | 2.57 |
| February 16 | 7.8 | 8.9 | 10.4 | .211 | .207 | .245 | 1.65 | 1.84 | 2.55 |
| February 23 | 8.5 | 8.8 | 10.5 | .193 | .208 | .240 | 1.64 | 1.83 | 2.51 |

### Chicago Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration 1939 | 1938 | 10-Yr. Av. 1929-38 | Price of Fresh Graded Firsts (Dollars) 1939 | 1938 | Cost of Ration per 100 lbs. (Dollars) 1939 | 1938 |
|---|---|---|---|---|---|---|---|
| February 4 | 6.52 | 6.68 | 5.61 | .158 | .176 | 1.032 | 1.181 |
| February 11 | 6.07 | 7.17 | 5.66 | .165 | .165 | 1.002 | 1.187 |
| February 18 | 6.07 | 6.70 | 5.76 | .165 | .175 | 1.001 | 1.178 |
| February 25 | 6.21 | 6.92 | 5.97 | .164 | .170 | 1.018 | 1.181 |

## Egg and Poultry Exports and Imports

### Exports of Eggs and Poultry

| Commodity | | January 1939 | January 1938 |
|---|---|---|---|
| Eggs in Shell | (doz.) | 190,888 | 188,481 |
| Eggs & Yolks, frozen, dried, or canned | (lbs.) | Not available | Not available |
| Live Poultry | (lbs.) | 7,883 | 5,517 |
| Dressed Poultry | (lbs.) | 124,219 | 76,280 |

### Imports of Eggs and Poultry

| | | | |
|---|---|---|---|
| Eggs in Shell | (doz.) | 49,623 | 28,535 |
| Whole Eggs, dried | (lbs.) | 6,000 | 14,150 |
| Whole Eggs, frozen | (lbs.) | 0 | 0 |
| Yolks, dried | (lbs.) | 28,775 | 158,700 |
| Yolks, frozen | (lbs.) | 0 | 91,890 |
| Egg Albumen, dried | (lbs.) | 72,792 | 119,387 |
| Egg Albumen, frozen | (lbs.) | 0 | 30 |
| Live Poultry | (lbs.) | 73,912 | 266,836 |
| Dressed Poultry | (lbs.) | 14,761 | 43,524 |
| Poultry, prepared | (lbs.) | 117,421 | 126,596 |

## Poultry Canning Operations

### Poultry Canning Operations During January 1939

| Commodity | Quantities reported to date or Jan. 1939 | Quantities reported for Dec. 1938 | Same Firm Comparison Jan. 1939 | Same Firm Comparison Jan. 1938 | % change in 1939 |
|---|---|---|---|---|---|
| | Pounds | Pounds | Pounds | | Per cent |
| Dressed poultry canned or used in canning | 3,848,467 | 3,619,066 | 3,848,467 | 2,727,997 | +41 |
| Number of firms reporting | 21 | 21 | 21 | | |

## Egg Breaking Operations

### Egg Breaking Operations During January 1939

| Commodity | | Quantities reported to date for Jan. 1939 | Same firm comparisons Jan. 1939 | Same firm comparisons Jan. 1938 | % change in 1939 |
|---|---|---|---|---|---|
| | | Pounds | Pounds | | Per cent |
| Whole eggs (nothing added) | | 673,971 | 613,492 | 219,880 | +179 |
| Mixed eggs (plain) | | 2,176 | 2,176 | 3,140 | − 31 |
| Mixed eggs (emulsions, also with sugar, salt, etc.) | | 90,199 | 90,199 | 48,412 | + 86 |
| Egg whites (all descriptions) | | 422,679 | 403,496 | 219,829 | + 84 |
| Egg yolks packed | Without salt, sugar, etc. | 312,117 | 302,615 | 194,563 | + 56 |
| | With sugar | 66,275 | 61,710 | 7,852 | +686 |
| | With salt | 0 | 0 | 0 | − |
| | All yolk emulsions, including glycerine | 0 | 0 | 0 | − |
| Total—pounds | | 1,567,417 | 1,473,688 | 693,676 | +112 |
| Total—case egg equivalent | | 47,833 | 42,105 | 19,819 | |
| Number of firms reporting* | | 41 | 39 | 39 | |

* Firms, not plants. Some firms operate more than one plant.

## Poultry in Storage

**Storage Holdings of Frozen Poultry**

| Kind | February 1 5-Year Avg. 1934-38 | February 1 1938 | January 1 1939 | February 1 1939 | % Change Feb. '38-Feb. '39 |
|---|---|---|---|---|---|
| | | (Thousand Pounds) | | | |
| Broilers | 14,826 | 8,886 | 11,552 | 10,781 | +21.3 |
| Fryers | 13,239 | 9,850 | 15,078 | 13,703 | +39.1 |
| Roasters | 31,393 | 23,344 | 33,984 | 31,289 | +34.0 |
| Fowls | 20,307 | 22,126 | 23,823 | 21,217 | − 4.1 |
| Turkeys | 26,572 | 28,020 | 22,762 | 28,274 | + 0.9 |
| Ducks | 3,016 | 4,290 | 6,739 | 4,663 | + 8.6 |
| Miscellaneous | 18,587 | 18,589 | 25,170 | 24,530 | +31.9 |
| Total | 127,940 | 115,105 | 139,108 | 134,457 | +16.8 |

## Eggs in Storage

**Storage Holdings of Eggs**

| Kind | February 1 5-Year Avg. 1934-38 | February 1 1938 | January 1 1939 | February 1 1939 | % Change Jan. '38-Feb. '39 |
|---|---|---|---|---|---|
| | | (Thousands) | | | |
| Shell Eggs (cases) | 206 | 314 | 302 | 136 | −56.6 |
| Frozen Eggs (lbs.) | 59,412 | 95,598 | 62,903 | 50,560 | −47.6 |
| Frozen Case* Equivalent (cases) | 1,697 | 2,731 | 1,797 | 1,445 | −47.0 |
| Total (cases) | 1,903 | 3,045 | 2,099 | 1,581 | −48.0 |

* Frozen eggs are converted on the basis of 35 lbs. to the case.

## Hatchery Operations

**Eggs Set, Chicks Hatched, and Chicks Booked by Commercial Hatcheries**

| Geographic Section | No. of plants | Eggs Set During January | | | Salable Chicks Hatched During January | | | Chicks Booked Feb. 1 for Feb. or later delivery | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1939 | 1938 | % chg. | 1939 | 1938 | % chg. | No. of plants | 1939 | 1938 | % chg. |
| | | Thousands | | | Thousands | | | | Thousands | | |
| N. Eng. | 21 | 1,586 | 1,306 | +21 | 1,470 | 1.006 | +46 | 21 | 2,164 | 1,699 | + 30 |
| Mid. Atl. | 39 | 1,619 | 848 | +91 | 589 | 312 | +89 | 38 | 1,862 | 1,301 | + 43 |
| S. Atl. | 37 | 1,160 | 756 | +53 | 634 | 359 | +77 | 28 | 1,114 | 764 | + 46 |
| E. N. Cent. | 119 | 2,524 | 1,937 | +30 | 1,003 | 577 | +74 | 123 | 3.070 | 2,439 | + 26 |
| W. N. Cent. | 53 | 2,263 | 1,718 | +32 | 935 | 493 | +90 | 95 | 2,160 | 1,528 | + 41 |
| S. Cent. | 54 | 1,513 | 1,229 | +23 | 679 | 395 | +72 | 44 | 701 | 526 | + 33 |
| Mountain | 23 | 564 | 344 | +64 | 164 | 83 | +98 | 30 | 1,014 | 439 | +131 |
| Pacific | 39 | 3,326 | 2,587 | +29 | 1,142 | 972 | +17 | 34 | 6,025 | 5,381 | + 12 |
| U. S. | 385 | 14,555 | 10,725 | +36 | 6,616 | 4,197 | +58 | 413 | 18,110 | 14,047 | + 29 |

NOTE: The above tabulation is compiled from reports of the same firms for 1939 and 1938 and does not include reports of hatcheries of less than 10,000-egg capacity. The 385 plants reported have a combined capacity of 46,000,000 eggs.

## *Storage Plants Prove Popular*

Cold storage locker plants which have sprung up in recent years have found favor with farmers and poultrymen in the Middle West. More than 60 plants have been built in Wisconsin during the past 3 years, and there are others being constructed. Over 300 plants are now operating in Iowa. These plants provide lockers in which both farm and city families store meat, poultry, vegetables, and other foodstuffs at freezing temperatures.

In Wisconsin, there are two types of plants—those that have a limited service and those that offer a more complete service. In the former plants, the patrons cut and wrap their food stuffs themselves and simply pay rent for the lockers. Such plants are often operated as side-lines to creameries, cheese factories, meat markets, and country stores. Locker rentals in these plants run about $5 or $6 a year.

The plants that operate as a separate business offer more complete service. They usually have 4 principal rooms: a chill room where carcasses of meat are chilled and aged at 34 to 38 degrees Fahrenheit; a cutting room in which meat is cut into steaks, chops, roasts, and other portions, then wrapped and labeled; the sharp freezing room where meat is frozen solidly at sub-zero temperatures; and finally a locker room kept at 10 to 13 degrees Fahrenheit, where patrons keep their foodstuffs under lock and key. Some of the plants also have a machine room, reception room, office and supply room. Some plants have facilities for butchering also. In Wisconsin, the plants giving complete service get about $10 a year rental from lockers, and charge from 1 to 1½ cents a pound for chilling, cutting, labeling, and sharp-freezing the meat.

Poultry is dressed and drawn before being stored. After the birds are dressed, they are wrapped in heavy parchment paper to prevent drying out and loss of flavor. Giblets are wrapped in parchment and put in the body cavity. Some locker users skin and bone their birds and then wrap the meat inside of the skin. By doing this, the carcass can be pressed into a square, thereby saving space.

—A. O. Braeger in American Poultry Journal, March 1939.

❝ POULTRY farming is like life; you get out of it as much as you put in, no more and no less. If it is as easy to make money out of poultry as some people would have us believe, nearly everybody would be at it, and if it were as difficult as other say, no one would attempt it. It may never give you great riches, but it can give you a decent living, and that satisfaction which only creative work can bring.

—Eggs, London, Feb. 15, 1939.

❝ DO YOU know the origin of the expression "A chicken in every pot"—made famous by ex-President Herbert Hoover? It is by no means new. King Henry IV, of France, in his coronation speech, when he ascended the throne, expressed the desire "That every peasant in my country have 2 chickens in his pot on Sundays."

—American Poultry Journal, March 1939.

# RESULTS OF LAYING TESTS

J. J. Warren's Rhode Island Red pen at Passaic, N. J., still rules the roost through the month of January at all laying trials, but Kauder's Leghorns at Storrs are within two points of grabbing the crown from the leaders. Nelson's Leghorns at Texas also are closing in on the Warren pen.

While not fighting for the championship among the top pens to date, Eben Wood has the distinction of having highest scoring pen in both New Hampshires and Barred Plymouth Rocks for the second consecutive month. Oscar W. Holtzapple is far in advance in the White Rock division, and Colonial Poultry Farm heads the White Wyandotte procession. Lonnie Van Sant's Black Australorps deserve a word or two for the speed at which they are shelling out eggs.

A. E. Guinn's White Leghorn continues to look down on all other standard test birds, with Weber Duck Farm's Rhode Island Red hen next in line. Ford's Riverbank Farm claims the highest producing pen for January. This entry of Rhode Island Reds at Maine averaged 28.2 eggs per bird for the month.

Texas Test shoved farther ahead of all other tests during the fourth month of this laying test year, and claims a lead of more than five points per bird over second place Georgia.

Pens at southern and western tests are making excellent records this year, compared with pens at other tests, and have a strong hold on a large proportion of the top pens in the leading breeds. In the 20 highest pens through the 123 days ending January 31, Texas has six of them; Georgia has four; and Florida has two. Among the White Leghorns, Texas has nine of the 20 highest pens, Georgia has four, Florida two, and Oklahoma one. Storrs, the test having the greatest number of winners during the 1937-38 test year, is bringing its pens to the front now after being delayed a week by the hurricane.

### Twenty Highest Pens, All Breeds, to February 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| J. J. Warren | Rhode Island Red | 1317 | 1340.35 | Passaic, N. J. |
| Kauder's Pedigreed Leghorns | White Leghorn | 1265 | 1338.55 | Storrs |
| Nelson's Leghorn Breeding Farm | White Leg. | 1271 | 1326.65 | Texas |
| Thomas Mettler | Rhode Island Red | 1317 | 1306.25 | Hunterdon, N. J. |
| Guy A. Leader | White Leghorn | 1289 | 1297.20 | Pennsylvania |
| Kauder's Pedigreed Leghorns | White Leghorn | 1261 | 1290.80 | Georgia |
| Vans R. Otey | Rhode Island Red | 1263 | 1288.05 | Florida |
| Foreman Poultry Farm | White Leghorn | 1246 | 1281.85 | Texas |
| Dublin Poultry Farm | White Leghorn | 1295 | 1281.60 | Georgia |
| Erath Egg Farm | White Leghorn | 1251 | 1276.70 | Texas |
| W. A. Seidel | White Leghorn | 1216 | 1275.05 | Texas |
| Woodlawn Farm | White Leghorn | 1199 | 1273.45 | Texas |
| Kauder's Pedigreed Leghorns | White Leghorn | 1245 | 1264.20 | Georgia |
| Sand Springs Home Farm | White Leghorn | 1219 | 1261.10 | Texas |
| Eben Wood | New Hampshire | 1226 | 1255.60 | Maine |
| J. J. Warren | Rhode Island Red | 1186 | 1255.25 | Storrs |
| A. J. Williams | New Hampshire | 1217 | 1251.90 | Florida |
| Rochelle Hatchery | White Leghorn | 1242 | 1249.05 | Michigan |
| A. E. Guinn | White Leghorn | 1266 | 1247.90 | Georgia |
| Ford's Riverbank Farm | Rhode Island Red | 1292 | 1247.60 | Maine |

### High Pen in Each Standard Test for January

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Ford's Riverbank Farm | Rhode Island Red | 367 | 374.55 | Maine |
| Foreman Poultry Farm | White Leghorn | 346 | 370.35 | Texas |
| E. N. Larrabee | New Hampshire | 342 | 366.05 | Storrs |
| J. J. Warren | Rhode Island Red | 337 | 365.25 | Rhode Island |
| Thomas Mettler | Rhode Island Red | 349 | 357.25 | Hunterdon, N. J. |
| Dublin Poultry Farm | White Leghorn | 343 | 354.00 | Georgia |
| Egyptian Hatchery | Barred Rock | 349 | 350.50 | Missouri |
| J. A. Hanson | White Leghorn | 323 | 342.70 | Arizona |
| Vans R. Otey | Rhode Island Red | 321 | 340.35 | Florida |
| Ford's Riverbank Farm | Rhode Island Red | 324 | 338.75 | Michigan |
| J. J. Warren | Rhode Island Red | 306 | 330.05 | Pennsylvania |
| Chas. M. Lathrop | Barred Rock | 307 | 327.25 | Passaic, N. J. |
| Content Farms | White Leghorn | 308 | 324.40 | Central New York |
| J. J. Warren | Rhode Island Red | 297 | 312.55 | New York State |
| Mrs. Lillia Ringen | Rhode Island Red | 302 | 305.55 | Oklahoma |
| Fuzzydele Farms | New Hampshire | 262 | 275.80 | Western New York |

### High Pen Each Breed to February 1—(123 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| J. J. Warren | Rhode Island Red | 1317 | 1340.35 | Passaic, N. J. |
| Kauder's Pedigreed Leghorns | White Leghorn | 1265 | 1338.55 | Storrs |
| Eben Wood | New Hampshire | 1226 | 1255.60 | Maine |
| Eben Wood | Barred Rock | 1170 | 1145.65 | Maine |
| Oscar W. Holtzapple | White Rock | 1148 | 1132.00 | Georgia |
| Colonial Poultry Farm | White Wyandotte | 1087 | 1119.10 | Texas |
| Lonnie Van Sant | Black Australorp | 1071 | 1098.85 | Arizona |
| Ben G. Munroe | Ancona | 900 | 907.75 | Texas |
| Colonial Poultry Farm | White Minorca | 871 | 886.10 | Georgia |
| Lindstrom Poultry Farm | Buff Minorca | 874 | 856.25 | Missouri |
| Raymond Murphy | White Giant | 743 | 782.85 | Missouri |
| Harry L. Phillips | Columbian Rock | 739 | 755.80 | Missouri |
| Henry F. Waitt | Silver Laced Wyandotte | 761 | 728.60 | Maine |
| S. E. Raymond | Lamona | 673 | 710.60 | Storrs |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 592 | 606.76 | Maine |
| Laclede Hatchery | Buff Orpington | 656 | 600.10 | Florida |
| Blue Ribbon Farm | Rhode Island White | 585 | 586.80 | Texas |
| Wm. W. Lehman | Buff Leghorn | 517 | 507.95 | Pennsylvania |
| Cedarlaid Poultry Farm | Brown Leghorn | 598 | 494.30 | Florida |
| Hall Bros. Hatchery | Cross | 345 | 353.90 | New York State |

### High Pen in Each Standard Test to February 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| J. J. Warren | Rhode Island Red | 1317 | 1340.35 | Passaic, N. J. |
| Kauder's Pedigreed Leghorns | White Leghorn | 1265 | 1338.55 | Storrs |
| Nelson's Leghorn Breeding Farm | White Leg. | 1271 | 1326.65 | Texas |
| Thomas Mettler | Rhode Island Red | 1317 | 1306.25 | Hunterdon, N. J. |
| Guy A. Leader | White Leghorn | 1289 | 1297.20 | Pennsylvania |
| Kauder's Pedigreed Leghorns | White Leghorn | 1261 | 1290.80 | Georgia |
| Vans R. Otey | Rhode Island Red | 1263 | 1288.05 | Florida |
| Eben Wood | New Hampshire | 1226 | 1255.60 | Maine |
| Rochelle Hatchery | White Leghorn | 1242 | 1249.05 | Michigan |
| Clinard Hatchery | Rhode Island Red | 1200 | 1224.30 | Oklahoma |
| R. E. & F. H. Kendrick | Rhode Island Red | 1159 | 1211.35 | Rhode Island |
| Content Farms | White Leghorn | 1146 | 1152.20 | Central New York |
| Dryden Poultry Breeding Farm | Barred Rock | 1102 | 1112.50 | Missouri |
| Colonial Poultry Farm | New Hampshire | 1101 | 1103.25 | Arizona |
| J. J. Warren | Rhode Island Red | 1007 | 1043.40 | Western New York |
| Foreman Poultry Farm | White Leghorn | 1061 | 1016.25 | New York State |

## High Hen in Each Standard Test for January

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Dryden Poultry Breeding Farm | White Leghorn | 31 | 34.10 | Pennsylvania |
| Chas. M. Lathrop | Barred Rock | 31 | 34.10 | Passaic, N. J. |
| Creighton Brothers | White Leghorn | 31 | 34.10 | Texas |
| Weber Duck Farm | Rhode Island Red | 31 | 34.10 | Michigan |
| Kauder's Pedigreed Leghorns | White Leghorn | 31 | 34.10 | Storrs |
| Colonial Poultry Farm | Barred Rock | 31 | 34.10 | Georgia |
| George A. Pearce | Rhode Island Red | 31 | 33.60 | Hunterdon, N. J. |
| Oakdale Farm | White Leghorn | 30 | 33.00 | Missouri |
| Colonial Poultry Farm | New Hampshire | 30 | 32.75 | Arizona |
| Gulfkist Poultry Farm | White Leghorn | 30 | 32.75 | Florida |
| Lord Brothers | Rhode Island Red | 30 | 32.65 | Maine |
| G. C. Butterworth | Rhode Island Red | 30 | 32.50 | Rhode Island |
| E. N. Larrabee | New Hampshire | 31 | 31.90 | Western New York |
| V. H. Kirkup | Barred Rock | 29 | 31.90 | Central New York |
| Colonial Poultry Farm | New Hampshire | 29 | 31.90 | Oklahoma |
| Eben Wood | New Hampshire | 29 | 31.65 | New York State |

## High Hen Each Breed to February 1—(123 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| A. E. Guinn | White Leghorn | 119 | 129.10 | Georgia |
| Weber Duck Farm | Rhode Island Red | 117 | 127.95 | Michigan |
| Dryden Poultry Breeding Farm | Barred Rock | 115 | 122.10 | Missouri |
| Colonial Poultry Farm | New Hampshire | 116 | 121.80 | Arizona |
| Oscar W. Holtzapple | White Rock | 109 | 117.10 | Georgia |
| Lindstrom Poultry Farm | White Wyandotte | 106 | 115.00 | Georgia |
| E. S. McSweeny | Black Australorp | 105 | 110.70 | Arizona |
| Raymond Murphy | White Giant | 102 | 109.25 | Missouri |
| T. D. Brown | White Minorca | 90 | 95.40 | Texas |
| S. E. Raymond | Lamona | 84 | 91.95 | Storrs |
| Missouri Valley Hatchery | Ancona | 86 | 91.80 | Oklahoma |
| Donald C. Chandler | Silver Laced Wyandotte | 92 | 91.20 | Maine |
| Harry L. Phillips | Columbian Rock | 94 | 88.10 | Missouri |
| Lindstrom Poultry Farm | Buff Minorca | 85 | 84.40 | Missouri |
| Blue Ribbon Farm | Rhode Island White | 77 | 82.70 | Texas |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 78 | 82.60 | Maine |
| Iowa Master Breeders | Buff Orpington | 82 | 79.40 | Missouri |
| Missouri Valley Hatchery | Buff Leghorn | 92 | 74.00 | Maine |
| Cedarlaid Poultry Farm | Brown Leghorn | 81 | 72.55 | Florida |
| Hall Bros. Hatchery | Cross | 64 | 68.80 | New York State |

## High Hen in Each Standard Test to February 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| A. E. Guinn | White Leghorn | 119 | 129.10 | Georgia |
| Weber Duck Farm | Rhode Island Red | 117 | 127.95 | Michigan |
| W. A. Seidel | White Leghorn | 115 | 125.55 | Texas |
| J. J. Warren | Rhode Island Red | 114 | 123.35 | Passaic, N. J. |
| E. B. Parmenter | Rhode Island Red | 113 | 122.35 | Rhode Island |
| Dryden Poultry Breeding Farm | Barred Rock | 115 | 122.10 | Missouri |
| Colonial Poultry Farm | New Hampshire | 116 | 121.80 | Arizona |
| Gulfkist Poultry Farm | White Leghorn | 112 | 121.30 | Florida |
| Thomas Mettler | Rhode Island Red | 110 | 119.15 | Hunterdon, N. J. |
| Redbird Farm | Rhode Island Red | 114 | 118.90 | Maine |
| Bryan J. Snell | White Leghorn | 111 | 118.70 | Pennsylvania |
| Sand Springs Home Farms | White Leghorn | 108 | 115.20 | Oklahoma |
| Douglaston Manor Farm | Rhode Island Red | 107 | 113.65 | Western New York |
| Steelman Poultry Farms | New Hampshire | 105 | 112.50 | Storrs |
| Dryden Poultry Breeding Farm | White Leghorn | 105 | 110.50 | Central New York |
| J. J. Warren | Rhode Island Red | 104 | 105.10 | New York State |

## 20 Highest White Leghorn Pens in Country to February 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Kauder's Pedigreed Leghorns | 1265 | 1338.55 | Storrs |
| Nelson's Leghorn Breeding Farm | 1271 | 1326.65 | Texas |
| Guy A. Leader | 1289 | 1297.20 | Pennsylvania |
| Kauder's Pedigreed Leghorns | 1261 | 1290.80 | Georgia |
| Foreman Poultry Farm | 1246 | 1281.85 | Texas |
| Dublin Poultry Farm | 1295 | 1281.60 | Georgia |
| Erath Egg Farm | 1251 | 1276.70 | Texas |
| W. A. Seidel | 1216 | 1275.05 | Texas |
| Woodlawn Farm | 1199 | 1273.45 | Texas |
| Kauder's Pedigreed Leghorns | 1245 | 1264.20 | Georgia |
| Sand Springs Home Farm | 1219 | 1261.10 | Texas |
| Rochelle Hatchery | 1242 | 1249.05 | Michigan |
| A. E. Guinn | 1266 | 1247.90 | Georgia |
| John A. Clear | 1190 | 1244.50 | Hunterdon, N. J. |
| Erath Egg Farm | 1216 | 1242.35 | Texas |
| Booth Farms and Hatchery | 1200 | 1240.40 | Florida |
| W. A. Seidel | 1185 | 1240.20 | Texas |
| I. Comer | 1220 | 1229.75 | Texas |
| Gulfkist Poultry Farm | 1222 | 1228.60 | Florida |
| Booth Farms and Hatchery | 1161 | 1216.75 | Oklahoma |

## 20 Highest Rhode Island Red Pens in Country to February 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| J. J. Warren | 1317 | 1340.35 | Passaic, N. J. |
| Thomas Mettler | 1317 | 1306.25 | Hunterdon, N. J. |
| Vans R. Otey | 1263 | 1288.05 | Florida |
| J. J. Warren | 1186 | 1255.25 | Storrs |
| Ford's Riverbank Farm | 1292 | 1247.60 | Maine |
| Ralph W. Anderson | 1179 | 1241.10 | Storrs |
| Clinard Hatchery | 1200 | 1224.30 | Oklahoma |
| Cane Poultry Farm | 1192 | 1219.25 | Hunterdon, N. J. |
| Ford's Riverbank Farm | 1211 | 1212.80 | Michigan |
| R. E. & F. H. Kendrick | 1159 | 1211.35 | Rhode Island |
| Weber Duck Farm | 1256 | 1208.60 | Georgia |
| J. J. Warren | 1122 | 1187.75 | Rhode Island |
| Wegatepa Farms | 1146 | 1184.70 | Maine |
| Homestead Farm | 1144 | 1180.10 | Storrs |
| George A. Pearce | 1207 | 1179.00 | Hunterdon, N. J. |
| J. J. Warren | 1155 | 1176.85 | Storrs |
| L. D. Bartholomew | 1188 | 1176.00 | Storrs |
| Wene Chick Farms | 1172 | 1170.00 | Storrs |
| George A. Pearce | 1217 | 1169.90 | Passaic, N. J. |
| Hall Brothers | 1133 | 1164.00 | Storrs |

## 20 Highest New Hampshire Pens in Country to February 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Eben Wood | 1226 | 1255.60 | Maine |
| A. J. Williams | 1217 | 1251.90 | Florida |
| A. J. Williams | 1226 | 1238.70 | Florida |
| Thomas J. Harrold | 1255 | 1220.30 | Georgia |
| Steelman Poultry Farms | 1145 | 1177.40 | Storrs |
| Hubbard Farms | 1175 | 1165.90 | Storrs |
| Pine Mountain Valley Farms | 1096 | 1149.00 | Georgia |
| Quimby School | 1217 | 1141.95 | Maine |
| W. H. Boulware | 1123 | 1137.40 | Florida |
| James H. Horne | 1112 | 1117.60 | Maine |
| Colonial Poultry Farm | 1101 | 1103.25 | Arizona |
| Fuzzydele Farms | 1038 | 1099.45 | Pennsylvania |
| Pine Top Poultry Farm | 1010 | 1066.40 | Maine |
| Pine Top Poultry Farm | 972 | 1034.60 | Georgia |
| W. H. Boulware | 1051 | 1028.30 | Georgia |
| Stroehlein Brothers | 1024 | 1019.05 | Passaic, N. J. |
| Del Rio Farm | 985 | 1018.45 | Arizona |
| E. N. Larrabee | 972 | 1007.70 | Storrs |
| James H. Horne | 935 | 976.20 | Storrs |
| Eben Wood | 935 | 971.75 | Passaic, N. J. |

## 20 Highest White Plymouth Rock Pens in Country to February 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Oscar W. Holtzapple | 1148 | 1132.00 | Georgia |
| Booth Farms | 1028 | 1049.45 | Missouri |
| Tender Broiler Hatchery | 1033 | 1011.75 | Oklahoma |
| Homestead Farms | 1025 | 980.70 | Pennsylvania |
| Kalerok Farm | 941 | 975.65 | Rhode Island |
| Albert C. Lawton | 929 | 964.05 | Rhode Island |
| T. S. Townsley | 953 | 963.90 | Georgia |
| Oscar W. Holtzapple | 945 | 926.30 | Pennsylvania |
| Riley Poultry Farm | 957 | 898.40 | Oklahoma |
| Earl C. Dunham | 894 | 885.90 | Georgia |
| Kalerok Farm | 858 | 879.65 | Storrs |
| Lewis Farms | 892 | 869.15 | Rhode Island |
| Clyde Cochran's Hatchery | 917 | 860.30 | Oklahoma |
| E. A. Hirt | 850 | 858.65 | Storrs |
| E. A. Hirt | 848 | 847.80 | Maine |
| Albert C. Lawton | 837 | 842.05 | Storrs |
| Homestead Farm | 853 | 832.55 | Storrs |
| E. A. Hirt | 799 | 831.55 | Rhode Island |
| Colonial Poultry Farm | 853 | 828.60 | Maine |
| Red Barn Poultry Farm | 811 | 805.85 | Storrs |

## 20 Highest Barred Plymouth Rock Pens in Country to February 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Eben Wood | 1170 | 1145.65 | Maine |
| Dryden Poultry Breeding Farm | 1136 | 1113.05 | Central New York |
| Dryden Poultry Breeding Farm | 1102 | 1112.50 | Missouri |
| Weber Duck Farm | 1111 | 1059.15 | Maine |
| Riley Poultry Farm | 1050 | 1050.50 | Georgia |
| Fuzzydele Farms | 1050 | 1047.10 | Storrs |
| Booth Farms | 1144 | 1044.05 | Florida |
| Weber Duck Farm | 1068 | 1038.90 | Georgia |
| Riley Poultry Farm | 1017 | 1030.95 | Oklahoma |
| Riley Poultry Farm | 1063 | 1018.45 | Michigan |
| Weber Duck Farm | 1003 | 992.10 | Florida |
| Woody Hatchery and Poultry Farm | 1044 | 976.40 | Georgia |
| Dryden Poultry Breeding Farm | 1017 | 968.40 | Pennsylvania |
| Weber Duck Farm | 957 | 962.20 | Passaic, N. J. |
| R. C. E. Wallace | 950 | 957.00 | Oklahoma |
| Charles M. Lathrop | 919 | 956.45 | Passaic, N. J. |
| Dryden Poultry Breeding Farm | 992 | 956.30 | Storrs |
| R. C. E. Wallace | 982 | 955.10 | Georgia |
| R. C. E. Wallace | 965 | 949.80 | Central New York |
| Colonial Poultry Farm | 951 | 943.70 | Georgia |

## Average Production in Each Test to February 1

| Test | No. Birds | Eggs Per Bird | Points Per Bird | Per Cent Mortality for Jan. | Per Cent Mortality to Feb. 1 |
|---|---|---|---|---|---|
| Texas | 910 | 74.89 | 76.22 | 1.75 | 4.83 |
| Georgia | 1,300 | 73.95 | 71.16 | 1.76 | 7.69 |
| Arizona | 260 | 69.99 | 69.58 | 1.15 | 5.00 |
| Hunterdon, New Jersey | 650 | 69.77 | 69.28 | 2.30 | 5.07 |
| Passaic, New Jersey | 1,001 | 66.51 | 65.47 | 1.09 | 4.19 |
| Storrs* | 1,300 | 65.19 | 65.33 | 1.61 | 4.15 |
| Florida | 1,248 | 66.02 | 63.96 | 1.52 | 5.60 |
| Pennsylvania | 1,131 | 62.86 | 62.57 | 1.59 | 3.89 |
| Oklahoma | 650 | 63.15 | 62.46 | 1.69 | 5.53 |
| Rhode Island | 650 | 58.44 | 59.97 | 2.46 | 6.46 |
| Michigan | 897 | 59.67 | 59.41 | 2.22 | 6.35 |
| Maine | 1,027 | 56.51 | 54.85 | 3.21 | 7.20 |
| Western New York | 884 | 56.01 | 54.40 | 1.13 | 2.60 |
| Missouri | 780 | 50.91 | 51.91 | 2.17 | 6.52 |
| Central New York | 910 | 49.63 | 48.48 | 1.31 | 2.63 |
| New York State* | 1,222 | 47.75 | 46.38 | 1.71 | 5.97 |
| All Tests | 14,820 | 61.81 | 61.04 | 1.79 | 5.26 |

* One week behind other tests in opening because of hurricane.

## High Pen, Each Breed, in Illinois Non-Standard Test to February 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Standard Hatchery | White Leghorn | 539 | 549.20 |
| Mapleside Poultry Farm | Barred Rock | 497 | 494.90 |
| Mrs. Curtis Manshak | White Rock | 451 | 441.50 |
| Corn Belt Hatchery | New Hampshire | 355 | 377.05 |
| Macomb Hatchery | Buff Orpington | 350 | 348.30 |
| Jos. Schafer & Sons Hatchery | Rhode Island Red | 314 | 321.40 |
| Belldear Hatchery | White Wyandotte | 326 | 310.55 |
| H. R. Harnes | Brown Leghorn | 247 | 222.70 |
| Wallace Moody | Buff Rock | 229 | 214.05 |

## 5 High Pens, R. O. P. Progeny Test, Paterson, N. J. ,to February 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Wegatepa Farms | Rhode Island Red | 1346 | 1337 |
| Stroehlein Brothers | White Leghorn | 1166 | 1187 |
| Oak Knoll Poultry Farm | White Leghorn | 1208 | 1173 |
| E. B. Parmenter | Rhode Island Red | 1128 | 1155 |
| R. A. Hopkinson | White Leghorn | 1098 | 1127 |

## High Pen, Each Breed, Vineland, N. J., Hen Test to February 1

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Dombro Poultry Farm | White Leghorn | 542 | 591 | Two-Year |
| J. J. Warren | Rhode Island Red | 407 | 441 | Two-Year |
| Nedlar Farm | New Hampshire | 241 | 263 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 183 | 198 | Two-Year |
| J. A. Hanson | White Leghorn | 315 | 342 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 230 | 247 | Four-Year |
| Raymond Gardner | White Rock | 22 | 23 | Four-Year |

## High Pen, Each Breed, Vineland, N. J., Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| J. J. Warren | Rhode Island Red | 4313 | 4662 | Two-Year |
| J. A. Hanson | White Leghorn |  | 4295 | Two-Year |
| Nedlar Farm | New Hampshire | 3873 | 4160 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 3226 | 3392 | Two-Year |
| J. A. Hanson | White Leghorn | 6219 | 6683 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 8894 | 9365 | Four-Year |
| Raymond Gardner | White Rock | 4974 | 5267 | Four-Year |

## High Pen, Each Breed in Pennsylvania Hen Test to February 1

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| John Schrope | White Leghorn | 807 | 876 | Two-Year |
| E. B. Parmenter | Rhode Island Red | 553 | 604 | Two-Year |
| Fuzzydele Farms | New Hampshire | 531 | 578 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 404 | 440 | Two-Year |
| A. M. Wolgemuth | White Leghorn | 440 | 478 | Three-Year |
| Fuzzydele Farms | Barred Rock | 405 | 442 | Three-Year |

## High Pen, Each Breed in Pennsylvania Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| J. A. Hanson | White Leghorn | 4314 | 4610 | Two-Year |
| E. B. Parmenter | Rhode Island Red | 3889 | 4089 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 3574 | 3767 | Two-Year |
| Fuzzydele Farms | New Hampshire | 3605 | 3766 | Two-Year |

# Intended Purchases of Baby Chicks in 1939

*Report of the U. S. Bureau of Agricultural Economics. Released Feb. 25, 1939*

FARM poultry producers expect to buy about 8 per cent more hatchery chicks in 1939 than they bought in 1938, judging by reported intentions of over 22,000 crop correspondents of the U. S. Department of Agriculture.

Intended increases are reported for all major regions. The North Central region, which has nearly half of the United States chicken population, reports only a moderate increase in intended purchases, the East North Central area showing an intended increase of 3 per cent, and the West North Central of 4 per cent. The Middle Atlantic region, which produces heavily both in farm and commercial flocks, expects to increase buyings about 7 per cent. The highly commercial New England area reports 19 per cent larger purchases intended than were made in 1938. The Pacific Coast area, also highly commercial, reports only a small increase of 3 per cent intended.

In the South, large increases are planned in purchases of baby chicks, with a 12 per cent increase in the South Atlantic region, 20 per cent in the East South Central, and 14 pe cent in the West South Central. This section has in the past bought the smallest proportion of their chicks of any of the geographic areas but apparently is becoming more interested in hatchery chicks. The Rocky Mountain area reports an intended increase of 25 per cent in purchases.

Reports in February last year showed an indicated intention to increase purchases about 8 per cent, over the previous year, the same intended increase as is reported for the present year. The number of all young chicks reported on hand in farm flocks on June 1 last, including both chicks bought and chicks hatched on the farm, was about 12 per cent greater than in 1937.

Returns from a large number of commercial hatcheries showed an average increase in their 1938 January to July production of baby chicks, of 16 per cent over 1937 production.

**Intended Purchases of Baby Chicks in 1939**
Based upon Reports from Crop Correspondents of the United States Department of Agriculture

| Geographic area | Number of flock owners reporting | Intended purchases as a percentage of 1938 purchases |
|---|---|---|
| New England | 264 | 119 |
| Middle Atlantic | 1,544 | 107 |
| East North Central | 4,104 | 103 |
| West North Central | 5,743 | 104 |
| South Atlantic | 3,091 | 112 |
| East South Central | 2,696 | 120 |
| West South Central | 2,292 | 114 |
| Rocky Mountain | 1,462 | 125 |
| Pacific Coast | 931 | 103 |
| UNITED STATES | 22,127 | 108 |

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Intended Purchases of Baby Chicks in 1939

[illegible]

| Geographic area | Number of flock owners reporting | Intended purchases as a percentage of 1938 purchases |
|---|---|---|
| New England | [illegible] | [illegible] |
| Middle Atlantic | [illegible] | [illegible] |
| East North Central | [illegible] | [illegible] |
| West North Central | [illegible] | [illegible] |
| South Atlantic | [illegible] | [illegible] |
| East South Central | [illegible] | [illegible] |
| West South Central | [illegible] | [illegible] |
| Rocky Mountain | [illegible] | [illegible] |
| Pacific Coast | [illegible] | [illegible] |
| UNITED STATES | [illegible] | [illegible] |

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## Plan of Indexing Subject Matter

The annual index of subject matter to appear in the December issue of the DIGEST should be especially valuable to those who wish to use this publication for reference purposes in the future. It appears, as the compilation goes along from month to month, that this index will be far more complete than any other now available on current poultry information.

To a large degree, the usefulness of an index of this kind is determined by the choice of the key words. Some subjects can be indexed under one key word, but we find in most instances that two or three cross references are desirable. To illustrate the plan being followed now, the index for six pages of poultry research in the March issue is reproduced here:

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# POULTRY DIGEST

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Vol. 1, No. 4 April, 1939

# Easter Eggs Down Through the Ages

E. Hazel Regan

*Condensed from a News Release*

COLORING eggs at Easter, like many other old-time customs, is no longer the tiresome complicated job it was years ago. Today the housewife can buy various colors, all conveniently included in one package, and it is a simple and easy matter for her to dye the eggs any color she wants. If she wishes to add attractive designs, she need only apply any one of the many interesting and unusual patterns expressly provided for the purpose.

Compare this with the days when it was a long, drawn-out affair to get an egg beyond the stage of looking pale and anemic. It was not an easy task to prepare the various colors, for the dyes had to be made from logwood, onion skins, furze flowers and juices of herbs. It was a long, tedious job.

Nevertheless, the custom was as popular then as it is today, and the [illegible] members took great pleasure in coloring their Easter eggs. Many [illegible] of traditional old-time patterns, which is exactly what [illegible] this year when we decorate eggs with Mickey Mouse, Donald Duck, Popeye the Sailor, and other cartoon characters.

Before the use of transfer designs, which is the easiest and most popular way of decorating eggs today, the simplest method was to trace the design on the shell with melted wax and then, when the egg was dyed and the wax removed, the pattern clearly stood out against the colored background. A more difficult method was to dye the egg and then scratch the design on the shell. Today the Armenians, Greeks, orthodox Russians, and other followers of the Greek Church, still paint their eggs with fine brushes in beautifully detailed designs which require patience and skill, and the

News Release [illegible]

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Compare this with the days when it was a long, drawn-out affair to get an egg beyond the stage of looking pale and anemic. It was not an easy task to prepare the various colors, for the dyes had to be made from logwood, onion skins, furze flowers and juices of herbs. It was a long, tedious job.

Nevertheless, the custom was as popular then as it is today, and the ancient peoples took great pleasure in coloring their Easter eggs. Many added decorations of traditional old-time patterns, which is exactly what we will do this year when we decorate our eggs with Mickey Mouse, Donald Duck, Popeye the Sailor, and other favorite characters.

Before the use of transfer designs, which is the easiest and most popular way of decorating eggs today, the simplest method was to trace the design on the shell with melted wax and then, when the egg was dyed and the wax removed, the pattern clearly showed against the colored background. A more difficult method was to dye the egg and then scratch the design in the shell. Today the Armenians, Greeks, orthodox Russians, and other followers of the Greek Church, still paint their eggs with fine brushes in beautifully detailed designs which requires patience and skill; and the

News Release from Paas Dye Co., Newark, N. J.

INTENTIONAL 2ND EXPOSURE

eggs are really fine works of art.

In parts of Germany elaborately ornamented eggs were a tradition, and the peasants took great pleasure in carrying on the custom of adorning their Easter eggs with beautiful and intricate patterns. In England the eggs were decorated with equal skill, but the patterns took a more romantic vein and were mostly exchanged among the young people, much as Valentine greetings are today.

These highly decorative eggs were greatly prized by their recipients for both the sentiment and the beauty of the designs, and very often given a place of honor in the home. Many believed them to be omens of good luck and kept the eggs indefinitely, or perhaps I should say as long as possible, to prevent sickness, fires and other misfortunes.

### The Egg Cracking Game

The children, lacking these superstitious convictions, had a number of games to play with their colored eggs, the most popular being the sport of knocking them together. One boy challenged another, and the one whose egg cracked first was the loser. The cracked egg was then forfeited to the winner and the contest continued.

In Mesopotamia the egg cracking sport apparently reached its peak, for the children not only knocked their eggs together on Easter Day, but for 40 days after. They bought as many eggs as they could during this time; boiled and colored them, and then proceeded to knock them together to see who could acquire the largest number. Colored eggs were also sold in the market place, and a hard-boiled egg probably had as prominent a place in the family Easter diet as it has today.

### Had Connection with Lent

It is quite likely the practice of eating many eggs after Easter had its origin in the complete abstinence from eggs during Lent. In Italy it was the custom to send large platters of colored eggs on Easter Eve and Easter Day to the church to be blessed. These were then believed especially beneficial to the body and were to be the first fat or fleshy nourishment after Lent. During Easter week each family kept a charger filled with colored eggs—sometimes there were two and three hundred on the dish at one time—and every guest was invited to eat an Easter egg with them. To refuse to do so was considered an insult to the host, and both the custom-observing family and their guests ate hardboiled eggs whether they liked them or not. To defer all social calls was no escape, for it was as obligatory for the host to offer the eggs to his visitors as it was for the guests to eat them. The custom was faithfully observed by all, and there is no question but that blood pressures, during Easter week, must have run pretty high.

### Easter Bunny of German Origin

To the children of Germany, Easter has always been as important as Christmas. For many, many years, they have thought a large hare with a basket of colored eggs visits their homes on Easter Eve and hides beautifully decorated eggs all over the house. Try as they may, no one ever sees the big Easter rabbit for, timid after the nature of its kind, it always waits until all the little children are asleep.

The hunt of the eggs Easter morning is very exciting, but really only half the fun. A very popular pastime is to roll the eggs down hills or gullies, and the one whose egg reaches

the bottom first without cracking is the winner and collects all the less fortunate eggs in the contest.

This custom undoubtedly is the origin of the present egg rolling contest held on the lawns of the White House every Easter Monday. Thousands of children attend the festivities each year and all have with them a basket of colored eggs.

Egg hunts, egg rollings, and contests for the prettiest colored eggs are just as popular in this country now as the municipal Christmas tree. Church organizations, newspapers, boys' and girls' clubs, Rotary, Kiwanis, and Lions Clubs throughout the country organize such events which are a regular part of their activities in the interests of the younger generation.

## *Keeping Chicks Off Brooder Hovers*

One of our lady members, who was confronted with a vexing problem, solved it in a very unique way. She is raising a flock of chicks and everything went well until they got to that size when they like to try their wings a bit and the tops of the electric brooders made an ideal landing field and parade ground. The results were the usual mess as in such cases which this member didn't like and decided to do something about it. So she cleaned off the tops of the hovers, which are galvanized iron, and painted them with liquid floor wax. The result was a hover with a slick glass-like appearance and when the pullets tried to make a landing on this field in preparation for the big parade, they went into a tail spin and landed back on the floor. No more dirty brooder tops in this brooder house.

—San Joaquin Valley Poultryman, Porterville, Calif., March 20, 1939.

## *An Idea for Cooling the Laying House*

Laying eggs is just a "breeze" for 1,200 hens on P. G. Donaldson's poultry farm in Dona Ana county, New Mexico.

Donaldson found the second story of his poultry house too hot for the hens, and their laying slumped. So, last summer he hitched up a 20-inch fan to a quarter-horse electric motor, put the fan in a big box with excelsior in the rear, turned on the water to moisten the excelsior. This kept the house cool, so that the hens forgot the heat and laid half again as many eggs as they did before the fan went to work.

—Farm Journal, April, 1939

❝ EACH year, about 10 days before Easter, York, Pa., schools hold an "Egg Donation Day" when the cihldren bring eggs to be used in the annual Easter Egg Hunt held in one of the city parks. Girl Scouts then complete the job of hard-boiling and decorating the eggs in plenty of time before they are to be distributed in one of the parks.

# The Next Ten Years—What's Ahead?

By E. L. Warren and W. D. Termohlen
U. S. Department of Agriculture

*Condensed from Poultry Tribune*

IT has been observed that there has been an increasing tendency toward the production of more eggs per laying bird kept in poultry flocks of the nation. Available statistical data indicate a reason to believe that during the past 50 years the average annual production per bird has at least doubled. This has been due to improved efficiency in management, feeding, housing, and the development of improved breeding stock. Continued improvement as the result of scientific research and practical application of this research seems possible.

Adult bird mortality, a problem now facing poultrymen, will be reduced as the result of the efforts of scientists working at the new Federal Poultry Laboratory recently established at East Lansing, Mich., those working in the many state experiment stations, and by practical poultrymen as well.

The more general adoption of the National Poultry Improvement Plan and continued improvement of flock management by commercial hatcherymen will add definitely to an improvement in average annual production per bird.

### Fewer Layers Needed

We can, it seems, therefore look into the next 10 years with the expectation that fewer laying birds will be needed in order to supply the consumers of the country with their egg requirements. This by no means should be considered as an omen of bad economic effects, for it carries with it the definite possibility of more efficient and consequently lower cost production. Lower production cost should prove healthful, since it is one of the best means of encouraging the consumption of the product.

In the past we have been able to increase our poultry population in the industry without too adverse economic effects because of a continued increase in human population. According to a report issued by the National Resources Committee in May 1938, a slowing down of population growth in the United States is now in evidence. Immigration restrictions and a slowing down in birth rate are major factors, and it is anticipated that the United States will reach its population peak within 50 years, with a maximum of approximately 158,000,000. Probably no great effects will be felt within the next 10 years, but it seems wise, when one considers the possible increased production per laying bird, for poultrymen to pay close attention to human population trends.

### Greater Specialization Indicated

As the death rate of laying stock is decreased, poultrymen may watch for further expansion of larger-scale commercial poultry enterprises and further specialization in the production of poultry products. There is now an apparent trend that specialization is slowly replacing diversification in the production of poultry products. Evidence of this can be seen in the increasing importance of large commercial flocks, particularly in the Northeast, in the growth of the commercial broiler industry, in the sale of baby chicks which have been sex sorted, and in the development of larger-scale turkey production. The effect of these developments is just beginning to be felt, and it appears that their further expansion in the next few years may cause considerable change in the methods of producing poultry products. These trends should be carefully watched and studied during the next 10 years.

### Changes in Processing and Marketing

There are also signs of changes in the processing and marketing of poultry products, having their beginning in this same background of improved technical methods. The increased use of prepared foods, such as bakery products, salad dressing, candies and noodles, together with expansion of public eating places sales, coupled with improved means of mechanical refrigeration, has brought about a tremendous increase in the use of frozen eggs. From 1916 to 1938, frozen eggs as a percentage of total stocks of eggs on August 1 have increased from less than 5 per cent to nearly 40 per cent of the total. This use of frozen eggs instead of eggs in the shell will probably continue to increase in the next 10 years. Increased egg production in the fall and winter months and the greater use of frozen eggs present a problem each spring in respect to the number of eggs to be stored in the shell. This problem will be a particularly important one during the next decade.

In recent years great improvement has been made in the processing of poultry meat. The sale of full-drawn or eviscerated poultry has shown indications of becoming the form in which a large proportion of poultry will be sold in the future.

### Meat Consumption Encouraged

Another development in the sale of poultry meat which probaby will become more important is the retailing of separate parts so the consumer can buy all drumsticks, all white meat, or only the cheaper parts of the bird. Marketing practices are changing with shifting degrees of importance to the various types of outlets. More and more attention is being given to the lowering of marketing costs and making egg and poultry products more attractive to consumers, both of which coupled with the new processing and marketing developments, should tend to encourage the consumption of the industry's products.

### A National Problem

After a certain period of experimentation with different methods for increasing consumption, we believe that possibly even early in the next 10 years will come a realization on the part of industry members that this is a national and not merely a regional problem and, further, that such an objective must have as its basis economically produced products of good quality sold on nation-wide adopted uniform grades.

We believe that taking the place of the so-called "increased consumption campaign" will come the institution, by an organized industry working cooperatively together, of a carefully developed longtime consumer educational program planned to reach each of the different income segments of the country's consumers. We base some of these latter beliefs on the fact that coming early in this 10 year period, the Seventh World's Poultry Congress and Exposition will prove a

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(Poultry Tribune, March, 1939)

big factor in bringing about a unified industry conscious of the needs for greater vision and of the benefit of working together on national problems.

The next 10 years will not be without problems, nor will up-swings and down-swings be noticeably absent. An entire industry working together, paying close attention to the ever-present and extremely important economic forces can, however, make the years of the next decade far more pleasant ones than those since 1928 have been.

## *Why Poultrymen Fail*

The rate of mortality (failures) among poultrymen is even higher than the mortality among poultry. For 25 years I have seen poultrymen come and go. A few of the tougher ones survive.

Why do they fail? For any number of reasons, of which lack of experience and capital are perhaps foremost. I doubt whether a commercial poultry farm can yield a living to a small family and leave anything for expansion with less than 1,000 good birds, and if they are just ordinary birds, the number should be 1,200 to 1,500. In other words, the better the birds, the smaller number will be required and the less the investment. Many poultrymen have to quit before they get their plant large enough to pay.

Many have no real love for poultry farming, and some take it up as a soft snap and are badly disappointed. Some don't see the little things, and many buy poor quality chicks because of a few cents' saving. Another is the man who has too much advice from everybody. Of course he gets it, for we all love to give advice. In trying to follow too many teachers, he stubs his toe and is thrown for a loss. Find out how some successful poultryman does it and follow him.

I know of no business that looks better in print than this poultry business, but there are some things between the lines that also should be read. It is no road to easy riches, but has many compensations.

—Excerpt from "The Poultry Business is No Place for Loafers," by C. T. Darby In New Jersey Farm and Garden, February, 1939.

HENS rained in Landsmere, Holland, landing in streets, on roofs, in gardens and in fields nearby. Housewives gave them a royal welcome and put them in coops or in pots to cook. The biddies had been picked up by a whirlwind that descended on chicken farms in the country and carried them to the town.

—Newspaper Article.

WHEN David Musser, near Ephrata, Pa., was investigating the theft of 25 chickens from his farm recently, he discovered that the thieves had also milked his cows.

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*A Champion Poultry-Picker*
*Reveals the Method by Which . . .*

# He Picks a Chicken in 3½ Seconds

*Condensed from The Prairie Farmer*

HE can pick a chicken in three and a half seconds. He can pick a chicken while blindfolded, or with his hands tied behind him.

He can pick two chickens at once—one with his hands and one with his feet.

In an endurance contest in Iowa a few years ago, he killed and picked 1,472 birds in seven hours, 45 minutes, or better than three a minute. His opponent gave up, exhausted, after picking 1,000 birds.

Ladies and gentlemen, meet the "champion feather-picker of all time"—Ernest G. Hausen, of Fort Atkinson, Jefferson Co., Wisconsin. Mr. Hausen has defended his title against poultry-picking champions of many states in the past 18 years, and at 61 he is still ready to meet any and all comers. He equals his world record time of three and a half seconds frequently.

### Secret of His Success

"The secret of success in fast and clean chicken-picking," says Mr. Hausen, "is in the temperature of the water. Most people use water that is too hot. That sets the feathers more tightly, instead of loosening them. My recipe is to add a quart of cold water to a gallon of boiling water, giving a temperature of about 164 degrees, Fahrenheit."

### Dip, Don't Pour

Mr. Hausen kills a chicken by holding it between his legs, cutting the jugular vein just under the wattles with a sharp knife, and breaking the neck with a deft turn of the wrist. He says it should be picked as soon thereafter as possible, because the feathers set if the fowl gets cold.

Instead of pouring the water over the chicken, he dips the bird into the bucket of water, holding it by the beak and feet and turning it about until the feathers pull out easily from the wings. He then lays it on a table four feet high and "pushes" the feathers off. By so doing he not only removes the feathers in a few seconds, but he skins off all the hair and pin feathers as well.

Hausen picks ducks and geese in much the same manner. His record for picking a goose is 24 seconds. He says many persons make the mistake of wrapping a goose in a towel and scalding it with boiling water. "They should dip the duck or goose into the water and 'push' the feathers off just as they would if they were picking chickens," says Hausen.

Mr. Hausen gained the fundamental training while working as a young man in a Fort Atkinson meat market.

In January, 1921, there was an exhibition of poultry dressing at the Fort Atkinson Poultry Show. A "Champion Picker" offered to meet all comers, and Hausen accepted the challenge.

Hausen picked his bird featherless in six seconds and won the championship. Then he began to take the business seriously and practiced short-methods till he had cut his time nearly in half.

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(The Prairie Farmer, March 11, 1939)

# Have We a New Utility Breed "White Americans"?

By Ellery E. Metcalf
Instructor, Essex County Agricultural School,
Hathorne, Massachusetts

*Condensed from New England Poultryman*

EXPERIENCE in retailing eggs in an area near Boston taught me the definite preference which New Englanders have for eggs with shells of pleasing brown shades.

In the course of my reading of poultry publications, I learned that deep brown eggs produced in Holland are marketed in London, England, under the trade name of "London browns." A breed known as "Laced Barnevelders" is used by the Dutch to produce these deep brown eggs.

I first saw specimens of the Laced Barnevelder breed and their eggs at the Boston Poultry Show about ten years ago. The birds were black with brown lacing and the eggs were the most intense brown in color of any breed.

### White Variety from "Sports"

A year or two later I learned that a white variety of Barnevelders was being developed by the Dutch from white "sports" or mutations that had appeared in the laced variety. I secured some specimens of both the laced and white varieties of Barnevelders. Four years of breeding Barnevelders enabled me to determine both the weak and the strong points of the breed.

The strain of Barnevelders with which I worked showed the comparative faults of small size, late maturity, low production and high mortality. They would commence laying when only about 4 pounds in weight, and the high mortality I attributed to the probability of inbreeding. Other poultrymen who experimented with Barnevelders found similar faults with their flocks. White Barnevelders had much better livability than the laced variety.

The desirable points about the White Barnevelders with which I worked were early feathering, deep brown egg color, non-broodiness, fine meat characteristics, and pleasing yellow skin color.

At the time several years ago when I first conceived the idea of creating a new breed, with Rhode Island Reds and White Barnevelders as the foundation, many strains of Rhode Island Reds were still quite weak in brown egg color, non-broodiness, fine meat type, and yellow skin; the very points for which my White Barnevelders were favorably outstanding.

### Characteristics Sought

I considered carefully what would result if a cross was made between White Barnevelders and Rhode Island Reds, and concluded that the interchange of genetic characters between these two breeds could be made to create, after a few generations, a superior new utility breed which would possess the following major desirable characteristics:

New England Poultryman Publishing Company, 4 Park Street, Boston, Mass.
(New England Poultryman, January and February, 1939)

1. Close to 100 per cent fairly uniform brown eggs of attractive shades.
2. High annual production of eggs of good average size.
3. A breed as early maturing and with the average body weight of good strains of Rhode Island Reds.
4. Attractive white plumage, early feathering, a pleasing body type.
5. Plump, yellow skinned carcasses, attractive as broilers, roasters, or fowl because of the full meated breast formation combined with yellow shanks and yellow skin.
6. A minimum of broodiness.

The Rhode Island Reds are classed as a brown egg breed, but the Barnevelder eggs average many shades deeper brown. Crossing the breeds has resulted in a breed laying eggs shaded more toward the deep brown of the Barnevelders.

The Rhode Island Reds have been bred to a much higher egg production standard than the Barnevelders. The breed resulting from the foundation cross of Reds and White Barnevelders is being bred toward the high egg averages of the Red side of the parent stock.

The Barnevelders were smaller in size and much later in coming into production than the Reds. The influence of the Reds is resulting in generations of offspring that now average well up to Rhode Island Red standards for the age of maturity and body weight.

### Crosses White Male and Red Female

The foundation matings for my new breed were White Barnevelder on the male side and Rhode Island Red on the female side.

The red plumage color of the Rhode Island Reds is a "dominant" color while the white plumage of the White Barnevelders is "recessive." A cross of the two gives a first generation of chickens that are all colored red and black. As a matter of fact, some specimens in this first generation in my work proved to look exactly like fairly good colored Rhode Island Reds and a few by contrast resembled Brown Leghorns in plumage color. There were variations of mixed red and black between these two extremes.

No whites appear in this generation. However, the chickens resulting from matings of the first generation will give a second generation about one-eighth of which will come white and about one-eighth will come white with some red feathers intermingled. About three-fourths of this second generation are like the first generation parents, red and black in plumage color.

### Second Generation Important

The whitest birds in this second generation will breed true for white and they constitute the beginning of a new white breed, the best specimens of which are mated to produce the third generation.

My work with this second generation included an experiment whereby I used females that showed considerable red in the plumage, but were very desirable in other ways, mated to the whitest males. I found that about one-half of the offspring from such matings came desirably white in plumage color and thereby a way was open to use good second generation specimens that otherwise would have been discarded on the point of plumage color alone. There were a few individuals, however, whose genetic make-up was such that much of their sprinkling of red feathers passed along to most of their offspring.

### Had to Increase Size of Flock

Because only about one-eighth of the F-2 generation come sufficiently white in plumage color to warrant their use in producing the third generation I increased my flock in the second generation to over 400 specimens, knowing that less than 50 of them would meet my selective standards in making matings to give third generation offspring that would show desirable progress in developing the new breed.

Matings of superior white birds for the fourth, fifth, and sixth generations are made to perfect the various characteristics desired, among which are early feathering and a body type showing good egg production capacity. Attractive, plump, yellow skinned carcasses are characteristics injected into the new breed principally from the White Barnevelder side of the foundation mating.

### Birds Show Steadier Growth

The new breed does not go through a rangy bony period in growth similar to that period in development of Rhode Island Reds. The new breed shows a plump, full-breasted body type during all stages of growth. It is thought that this characteristic may be the effect of either "Cornish" or "Dorking" blood which it seems very probable was used in creating the Barnevelders, and through the medium of the White Barnevelders, this plump well meated "Cornish" or "Dorking" inheritance has come into the new breed.

The Barnevelders are non-broody to a very high degree. At the time the foundation matings for the new breed were made, Rhode Island Red strains were still characteristically quite broody. Hence in breeding to reduce broodiness to a minimum in the new breed, heavy dependence was placed on the fact that Barnevelders would transmit the non-broody tendency to a high degree.

I have been fortunate in that the fifth generation of the new breed had only about 5 per cent broodies. I shall count myself indeed fortunate if I am able to hold close to that figure in future generations.

Eye color is excellent, practically every bird showing bright orange. The shape of eggs is definitely toward a well rounded type. Brown shades in egg color have not been difficult to maintain through six generations in the new breed.

### Rock Cross Gave Slate Shanks

In starting work on the new breed, I experimented with two types of foundation matings, White Barnevelder crossed with Rhode Island Red, which I have already explained, and White Barnevelder crossed with White Plymouth Rock. This latter combination gave good results with the exception of one objectionable characteristic in the offspring, namely, slate colored shanks. It was comparatively easy to secure good weight, body type, white plumage color, brown eggs, etc., but the slate shank was considerable of a handicap.

To date the new breed has been shown in competition as "Metcalf's White Americans" primarily because they fit into the classifications of American breeds rather than Asiatics or Mediterraneans.

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☛ THE CHICK increases its birth weight ten times in 8 weeks, while it takes a child 11 years (572 weeks) to do the same thing.
—From Ad in Harper Adams Utility Poultry Journal, England, January 1939.

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**An Idea That May Help to Increase Poultry Consumption**

# How to Prepare Smoked Poultry

By Stella Costigan

*Condensed from Everybodys Poultry Magazine*

A NEW idea engaging the consideration of many chicken and turkey raisers is that of smoking poultry. This subject is receiving considerable attention as a means of moving more poultry. The poultryman will undoubtedly be interested in learning that he can produce smoked poultry simply and at a low cost.

Smoked poultry (either chickens or turkeys) has that delicious, indescribable tang that says "more, please." Served hot as the main course is a favorite of many, or it may be served as cold cuts or in sandwiches. What a different, delightful, surprise church supper could be served with this delicacy! When picnic time comes, serve cold, smoked roast chicken sandwiches. It will be a sensation!

### Preparation of Brine

The preparation is very simple. The birds are killed and dressed in the usual manner, they are thoroughly washed both inside and out with cold water, and then chilled. A brine of sugar cure smoked salt is prepared, using water that has been sterilized by boiling. When the water is still boiling hot, add 2 pounds of the smoked salt to each gallon of water, stir well so that all of the salt is dissolved. Do not boil the brine.

When cool, strain through cloth and cool to 40 or 45 degrees Fahrenheit. Pour this brine over the birds contained in a stoneware jar. Make certain the brine has filled the inside cavity, and entirely covers the bird. It is wise to weigh the birds down with a heavy plate, so that they will remain covered throughout the period of the cure. During this time, they should be kept at a temperature not exceeding 40 degrees Fahrenheit.

### Length of Time for Curing

Chickens and small turkeys, weighing not more than 12 pounds, should be left in the brine one week. Large turkeys can be left in longer, allowing one additional day for each 3 pounds of weight.

At the end of the curing period, remove the birds from the brine, rinse and wipe dry. They may be used immediately, or they may be wrapped in cellophane or waxed paper, hung in a cold place and used within one or two weeks. The birds are then roasted. Before cooking, the birds should be soaked in cold water for two or more hours, changing the water once. Some have found that parboiling reduces the salt content. However, for young birds, soaking is preferable.

### Method of Roasting

In roasting birds that are cured in this way, it is advisable not to baste the bird with its own juices; a fresh material, such as hot water and butter, may be used. A rack should be

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(Everybodys Poultry Magazine, April, 1939)

placed in the bottom of the roasting pan so that the drippings from the bird will not resalt it.

A very interesting point in curing the birds with a brine prepared with smoked salt is that the shrinkage problem of smokehouse curing is not encountered.

Try this way of preparing poultry, not only for your own use, but as a means of selling birds in a new and novel way. Increase the consumption of poultry meat in this manner. It is not only a delightful surprise to the consumer, but also an added source of revenue to the poultryman.

## *Observations on Electric Brooding*

Thousands of electric brooders are now in operation in New Jersey, giving splendid service and fulfilling all requirements for the ideal brooder. Electric brooders are automatic in operation, the fuel is always on tap with someone else tending to the heating plant instead of the poultryman shoveling coal, hauling ashes or carting liquid fuels. Temperature is under very close automatic control, worry regarding condition of the fire or flame is eliminated and the ever-present fire hazard associated with other brooding methods is also done away with.

The cost of operating brooders varies according to outside temperatures and the age of the chicks. An average cost for New Jersey conditions is about one kilowatt hour per chick for the six weeks' brooding period. This will run slightly higher during February and March brooding and correspondingly less for the late spring season. Chicks under electric brooders feather earlier, appear to be hardier and more stocky than when brooded under the hot-house conditions inherent with methods that warm the entire room. Cold-room brooding characterizing the electric system has many advantages.

To give satisfactory service, electric brooders must be wired heavily enough so that there is no voltage drop in the line. Since the requisite size of wire depends on total wattage of brooders connected and the length of the run from the entrance service to the brooders, it is well to check with competent electricians or the power company regarding the wiring.

Insulation of brooder house is not essential but the house should be tightly constructed to avoid drafts. Ventilation is generally adequately provided by under-rafter openings at the front and by regulation of the front windows.

The most common mistake in management of electric brooders is tinkering with the thermostat to vary the night and day temperatures. Leave the instrument adjustment for maximum required temperature according to manufacturers' recommendations and then regulate the height of the brooder by means of a counterbalance weight. During nighttime, the brooder can be raised because of the massing of chicks under it; daytimes it can be lowered. The thermostat will adjust the heater automatically for these two conditions.

—W. C. Krueger, March Engineering News Notes, N. J. College of Agriculture.

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*Startling Growth Has Been Made in the Number and Value of . . .*

# Turkeys Raised from 1929 to 1938

*Condensed from a Mimeographed Report from the U. S. Bureau of Agricultural Economics*

ABOUT 26,279,000 turkeys were raised in the United States in 1938. This production was about 2.5 per cent larger than in 1937, but 5.2 per cent smaller than the peak production of 27,725,000 birds in 1936. The 5-year (1932-36) average is 23,081,000 birds, and the average for the 10-year period (1929-38) covered by the report is 21,839,000.

### 56 Per Cent Increase Since 1929

The pronounced increase in the number of turkeys raised during the past 10 years brought numbers in 1938 to 56 per cent higher than in 1929. The greatest annual increases during the period occurred in 1932 when numbers gained about 25 per cent over the previous year and in 1936 when the gain was about 35 per cent. The largest decreases were about 7 per cent in 1934 and 8 per cent in 1937.

During the 10-year period, substantial increases in turkey production have occurred in all major geographic areas, but they have been

**Number of Turkeys Raised, 1929-1938**

| Year | United States | North Atlantic | East North Central | West North Central | South Atlantic | South Central | Western |
|---|---|---|---|---|---|---|---|
| | | | (Thousands) | | | | |
| 1929 | 16,794 | 546 | 805 | 4,150 | 1,491 | 5,437 | 4,365 |
| 1930 | 16,535 | 690 | 884 | 4,075 | 1,732 | 5,120 | 4,034 |
| 1931 | 17,754 | 746 | 1,138 | 4,310 | 1,570 | 5,560 | 4,430 |
| 1932 | 22,230 | 955 | 1,544 | 5,860 | 1,974 | 7,075 | 4,822 |
| 1933 | 23,194 | 1,057 | 1,879 | 7,020 | 1,998 | 6,575 | 4,665 |
| 1934 | 21,663 | 1,190 | 2,044 | 5,810 | 2,150 | 5,685 | 4,784 |
| 1935 | 20,591 | 1,318 | 1,896 | 5,680 | 2,090 | 4,835 | 4,772 |
| 1936 | 27,725 | 1,590 | 2,660 | 8,030 | 2,240 | 6,443 | 6,762 |
| 1937 | 25,627 | 1,539 | 2,450 | 6,975 | 2,249 | 6,315 | 6,099 |
| 1938 | 26,279 | 1,661 | 2,692 | 7,829 | 2,166 | 5,869 | 6,062 |

**Value of Turkeys Raised, 1929-1938**

| Year | United States | North Atlantic | East North Central | West North Central | South Atlantic | South Central | Western |
|---|---|---|---|---|---|---|---|
| | | | (Thousands) | | | | |
| 1929 | 53,398 | 2,997 | 3,102 | 11,813 | 5,966 | 13,530 | 15,990 |
| 1930 | 44,834 | 2,939 | 2,568 | 10,009 | 5,473 | 10,865 | 12,980 |
| 1931 | 45,856 | 3,060 | 3,095 | 10,032 | 4,586 | 11,455 | 13,628 |
| 1932 | 37,131 | 2,959 | 2,982 | 8,996 | 4,209 | 8,627 | 9,358 |
| 1933 | 37,877 | 2,969 | 3,265 | 9,959 | 4,236 | 8,200 | 9,248 |
| 1934 | 47,770 | 3,869 | 4,602 | 12,128 | 5,406 | 10,176 | 11,589 |
| 1935 | 61,891 | 5,097 | 5,785 | 16,497 | 6,465 | 12,428 | 15,619 |
| 1936 | 62,867 | 5,725 | 6,414 | 16,040 | 6,049 | 10,636 | 18,003 |
| 1937 | 70,561 | 5,952 | 7,344 | 18,330 | 7,043 | 13,424 | 18,468 |
| 1938 | 69,781 | 6,289 | 7,404 | 19,177 | 6,475 | 12,341 | 18,095 |

most pronounced in the North Atlantic and East North Central States. In these two regions, numbers raised in 1938 were more than three times as great as in 1929. The high rate of increase in the Northeastern area is accounted for by the fact that numbers raised in these humid areas in 1929 were still near the low level to which they had fallen as a result of heavy losses from blackhead and other diseases over a long period of years, while during the decade previous to 1929, the industry was developing rapidly in the more arid regions farther west. The rapid recovery of numbers in the Northeast during the past 10 years has followed the more general adoption since 1929 of improved methods of turkey management and sanitation.

In the West North Central area the gain since 1929 was about 89 per cent, large increases being shown for all states of that group except North Dakota which lost in numbers during the period. In the Far West the increase between 1929 and 1938 was 39 per cent, and in the South Atlantic States, it was about 45 per cent.

The smallest increase since 1929 in any of the major regions was 8 per cent in the South Central States, where the loss of numbers in the important producing State of Texas exceeded the gains in the other states of this region. Numbers in Texas declined from 3,783,000 turkeys in 1929 to 3,285,000 in 1938.

### 40 Per Cent from North Central

About 40 per cent of the 1938 turkey crop of the United States was raised in the 12 North Central States, compared with 30 per cent in 1929. The North Central area changed places in relative importance of production with the South (southeast and south central combined) which supplied 31 per cent of the United States crop in 1938 and 41 per cent in 1929. The Far West decreased in relative importance from 26 per cent in 1929 to 23 per cent last year; marked increases in the Pacific Coast States were partly offset by decreases in most of the Rocky Mountain region except the Great Basin area. The North Atlantic States increased from 3 per cent in 1929 to 6 per cent of the United States total in 1938.

While threefold and fivefold increases in production are shown for a number of states in the Northeastern and North Central areas, the most striking gain occurred in Iowa, where numbers increased from 112,000 turkeys in 1929 to 1,386,000 in 1938, a 12-fold gain.

Seven states showed more than a million turkeys raised in 1938; these were: Texas, 3,285,000 birds, California, 2,625,000, Minnesota, 2,145,000, Oklahoma, 1,418,000, Iowa, 1,386,000 and North Dakota and Oregon each 1,265,000. In seven other states—Missouri, Ohio, Kansas, Virginia, South Dakota, Pennsylvania and Nebraska—numbers raised ranged from 945,000 in Missouri down to 600,000 in Nebraska. Indiana, Michigan, Colorado, Illinois, Utah and Kentucky raised from 540,000 down to 468,000 turkeys last year.

### Number of Turkeys Raised by States, 1938

(Thousands)

| | | | |
|---|---|---|---|
| Me. | 58 | N. C. | 238 |
| N. H. | 53 | S. C. | 142 |
| Vt. | 91 | Ga. | 112 |
| Mass. | 242 | Fla. | 104 |
| R. I. | 33 | Ky. | 468 |
| Conn. | 98 | Tenn. | 246 |
| N. Y. | 320 | Ala. | 166 |
| N. J. | 105 | Miss. | 128 |
| Pa. | 661 | Ark. | 90 |
| Ohio | 858 | La. | 68 |
| Ind. | 540 | Okla. | 1,418 |
| Ill. | 472 | Tex. | 3,285 |
| Mich. | 525 | Mont. | 248 |
| Wis. | 297 | Idaho | 196 |
| Minn. | 2,145 | Wyo. | 225 |
| Iowa | 1,386 | Colo. | 513 |
| Mo. | 945 | N. Mex. | 85 |
| N. Dak. | 1,265 | Ariz. | 88 |
| S. Dak. | 696 | Utah | 470 |
| Nebr. | 600 | Nev. | 41 |
| Kans. | 792 | Wash. | 306 |
| Del. | 103 | Oreg. | 1,265 |
| Md. | 405 | Calif. | 2,625 |
| Va. | 788 | U. S. | 26,279 |
| W. Va. | 274 | | |

### Better Methods Used

The reasons for the very rapid increase in turkey production during recent years appear to be mainly a more general knowledge and application of improved methods for lessening the mortality of poults, and improved methods of handling and feeding. These improvements have lessened the cost of production and put turkeys more closely in competition with chickens and other meats.

### More Large Flocks

Production of turkeys in small farm flocks, often in connection with other poultry, has continued to decrease in most areas, particularly in the humid sections. Even in the important producing States of North Dakota and Texas, where conditions are less humid but where most of the turkeys are raised in farm flocks of moderate size, production has decreased. But the greatly increased number of large turkey flocks, kept separate from other poultry, and handled under improved methods of sanitation, feeding and marketing, has much more than offset the loss in small flocks.

### Trend in Prices

The average price per head of turkeys sold by farmers varied from a maximum of $3.18 in 1929 to the low level of $1.63 in 1933. In 1938 the price was $2.66, compared with $2.75 in 1937 and the 10-year (1929-38) average of $2.47. The highest prices per head for turkeys are ordinarily received by producers in the North Atlantic, South Atlantic and Far Western areas, in the order named. Prices are progressively lower in the East North Central, West North Central and South Central areas. Prices per head are based upon the average weight of birds marketed times the yearly average price per pound derived from weighted monthly prices.

Differences in price per head in the various geographic areas are due to several factors, the most important of which probably are differences in average weight and quality of the birds, availability of markets, and costs of marketing including transportation.

The value of turkeys raised in 1938, based on prices received by growers, was $69,781,000 compared with $70,561,000 in 1937. The 5-year (1932-36) average value was $49,507,000 and the 10-year (1929-38) average $53,197,000.

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❝ IF YOU are a wise shopper, you will insist that the grocer keep his eggs in the cooler or the refrigerator, not piled in a basket or box on the counter. Equally important, too, you will see to it that the eggs are stored in your refrigerator as soon as you get them home. That bowl on top of the refrigerator, on the pantry shelf, or in the cupboard is not the place to keep eggs.

—Dorothy Marsh, Good Housekeeping, April, 1939.

*Changes in Breeding Ideas*
*Are Needed to Meet . . .*

# Consumer Demands for Turkeys

By G. T. Klein

Extension Specialist,
Massachusetts State College

*Condensed from New England Homestead*

THE story of the tiny apartment kitchen, the small family and the limited budget has been told so many times that we need not question its accuracy. These things have brought about a demand for a smaller turkey. How small? The National Association of Food Chains made a report after they had interviewed thousands of consumers. It was as follows:

**Consumer Demand for Turkeys by Size of Bird**

| Size of Turkey | | Proportion of total demand |
|---|---|---|
| Group 1 | 8 and 9 pounds | 25% |
| Group 2 | 10 and 11 pounds | 25% |
| Group 3 | 12 and 13 pounds | 23% |
| Group 4 | 14 and 15 pounds | 14% |
| Group 5 | 16 and 17 pounds | 8% |
| Group 6 | 18 pounds and over | 5% |

Turkey growers just now have in their minds the memory of a very satisfactory season — a year during which any kind of turkey regardless of size sold well. It probably won't be that way often and it is my guess that we do need to make adjustments in the way we breed turkeys. Perhaps there are four things that we can do.

1. Reduce the size of our present breeds and make them mature at 6 months weighing 15 pounds or less.
2. Adopt smaller breeds of turkeys for our market birds.
3. Hope that greater prosperity and demand for larger birds will return.
4. Educate the public to use a half of a large turkey or a part of a turkey roll.

I frankly cannot see how we will ever get very far with (3) and (4). The smaller breeds, if they have vigor and vitality, a good shaped carcass and can be finished at 8 to 15 pounds will gain in favor. There is a big field ahead, however, in breeding earlier maturity, smaller size and a better carcass into the Bronze, Whites, Reds and Narragansetts. The Blacks and other new breeds will have their problems as they gain in popularity. Perhaps it may not be size but egg production, hatchability, shape of carcass, early and complete feathering, color of skin, ability to use feed efficiently are all problems that will confront the breeder of turkeys no matter what breeds he chooses.

### Slow Process

We have a long way to go in establishing a breed that meets all of our market requirements. It will be a slow process, as is all breeding work. Possibly for the present, the large grower is better off if he chooses more than one breed. Perhaps he can better fill market requirements if he has some Whites or Reds or possibly some of the smaller breeds for his early markets and that trade demanding small birds and Bronze or Narragansetts for the regular season and hotel demands.

A Bronze that is immature cannot be dressed satisfactorily because of the black ink in the quills. The immature White or Red looks better when dressed because of white rather than black ink in the quills of partially grown feathers.

### Flock Selection

Most of the turkey breeding work is on the flock selection basis. Young hens are selected early in the fall before market birds are killed off. They are removed from the flocks and fed a good growing ration rather than one designed for fattening. It is common to use matings of 100 hens and 10 toms. Toms have their toenails clipped and saddles are used on the hens to protect their backs from injury. There is not much trouble from fighting among toms in large matings. With small matings of 20 hens and 2 males, the toms are frequently alternated to avoid this.

The points for consideration in selecting breeders are always headed by constitutional vigor. There are a good many things that indicate this— a bright eye, a friendly bird, a tom that gobbles loud and struts proudly. Body types, too, cannot be overlooked. The long legged bird is the dangerous one. He is certain to produce large, slow maturing birds with peaked breasts that in no way meet our market demands. The good breeder has mature feathers at 6 months and of course no intelligent grower would use a breeder with a crooked breast. As to plumage, well, go as far as you want with that.

### Inbreeding

Inbreeding just doesn't look wise for the commercial turkey grower. On the other hand, he doesn't have to go out and buy new toms every year. If there are several matings on the farm, mate them back and forth. Bring in new blood if it has what you want, above all, vigor and vitality. The first signs of bad results from too-close breeding will be in the vigor of the stock and lower hatchability.

Trapnesting, pedigree breeding and progeny testing are new breeding ventures for the turkey grower. They have worked well for the poultryman and ought to do as much for turkeys. In plain common everyday language, this program means finding the birds in the flock that produce turkeys that feather early, have short legs, and wide breasts. Some families produce this kind, others do not. It is a short cut in breeding to find a few birds able to do this, and thus establish a strain with those breeding possibilities.

From "Consumer Demands," New England Homestead, Feb. 11, 1939
New England Homestead Company, Springfield, Mass.

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IF the poultry trade could interest more persons in a hobby just discovered at Monticello, Ind., sales might increase rapidly. A man of Jasper, Mo., has just purchased a collection of 3,118 wishbones, a hobby of the late Alva Hanawalt of Monticello. In the collection of 19 different species, 2,200 were chicken wishbones. The smallest was a thread-like wishbird of a hummingbird. The largest was from a 44-pound turkey sent from Wabash, Ind. Mr. Hanawalt wanted most the wishbone of an ostrich, but never secured it.

—The Produce Packer, April 1, 1939.

*Streamlined to Meet the Need*
*for a Family-Size Bird, That's . . .*

# The Nittany Turkey

By Paul H. Margolf

*Reprinted from Everybodys Poultry Magazine*

EVER since the Nittany Turkey was exhibited for the first time at the last Neppco Exposition in New York City, we have answered inquiries from Maine to California concerning this new breed.

In 1929 we became interested at Penn State in the propagation of wild life, and this included the Pennsylvania wild turkey. It responded well to the confinement method of turkey production and each year the progeny became more domesticated in habits.

Then the special turkey report was released by the U. S. D. A. Bureau of Agricultural Economics showing from their survey that the small turkey was in demand by the greater number of buyers of turkeys for home use. Quoting this report: "Unless the demand changes, which appears unlikely, future breeding operations in turkey production should probably be in the direction of small turkeys."

## The Family-Size Turkey

In view of this survey we began our selection work with the Pennsylvania wild turkey and developed a small turkey for family use. As a result of management methods, we may say that the temperament of the Nittany compared to the Bronze in the turkey realm, is as that of the Leghorn compared to the Plymouth Rock in the chicken world. Future work will be with larger numbers of this breed emphasizing selection for shorter shanks and less ranginess in appearance.

Other domesticated varieties of turkeys such as the White Holland or Bronze show a wide gap in hen and tom weight distribution. The hens of these varieties average to weigh 12 pounds and the toms 20 pounds at 28 weeks of age. The latter weight is too heavy for the average family. This is where the 14-pound Nittany tom fits into the picture. Nittanies, both hens and toms, will qualify as popular sizes for family use.

Many light-weight turkeys offered on the market have little meat to cover the frame work of the bird and, therefore, appear as inferior quality. Because of the well rounded, thick meated breast, the Nittany hen, when dressed for market, presents an attractive appearance. This and more can be said of the Nittany toms. Small toms of the larger domesticated varieties, because of their slab-sided condition, do not have the consumer appeal. Nittany toms not only have the appearance of a compact well-meated carcass, but supply at the holidays the oft requested 11 to 12-pound dressed turkey.

Because of the increased consumption of turkeys in restaurant and hotel trade, the large tom has a special demand before and after the holidays. Bronze and Nittany turkeys have been compared at Penn State in weight (growth) response to the amount of feed intake. Naturally, the large tom of the Bronze variety will be the more efficient in feed cost per pound of weight produced. But sometimes these large toms are sold at a sacrifice by our local growers in order to discontinue the costly maintenance rations of so large a turkey. This is a disadvantage to the grower of large size turkeys.

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(Everybodys Poultry Magazine, April, 1939)

In addition, the Nittany tom will mature for market in less time than it takes the Bronze tom. Perhaps we should call the Nittany a holiday turkey. Certainly the tom is of a popular size for this season of the year and in addition has a well meated breast, streamlined for consumer appeal.

## Why Call Them Nittany Turkeys?

Those familiar with the part of the Pennsylvania State College Farm assigned to the poultry department will recall the view one gets of Nittany Mountain and other mountain ranges so numerous in this part of the state. Since the original stock of this variety roamed this tree covered mountainous area of central Pennsylvania, what more fitting name could be given to them than that of the Nittany Turkey?

## Tentative Weights

| | |
|---|---|
| Adult Cock - - - | 20 pounds |
| Yearling Cock - - - | 17 pounds |
| Cockerel - - - | 14 pounds |
| Adult Hen - - - - | 12 pounds |
| Pullet - - - - | 9 pounds |

## Color of Male

**Head:** Red, changeable to bluish white.

**Beak:** Light horn at tip, dark at base.

**Eyes:** Dark brown.

**Throat wattle:** Red, changeable to bluish white.

**Neck:** Under color black; surface color copperish bronze, each feather edged with black, the edging becoming wider toward breast and shoulders.

**Wings:** Fronts and bows under color dull black; surface color copperish bronze, each feather throughout its entire length crossed alternately with parallel black and light gray bars of equal width across the feathers. Secondaries, outer secondaries barred like primaries, barring becoming less distinct on inner secondaries which have a copperish bronze surface color.

**Back:** Under color dull black; surface color from base of neck to thighs copperish bronze, each feather edged across end with a narrow velvet black band which is wider on feathers toward the thighs; from the thighs to tail each feather is crossed with a copperish bronze band edged on the outer side with a velvet black band that gets narrower as the tail coverts are approached.

**Tail:** Under color of main tail and tail coverts dull black; surface color, each feather marked transversely with brown and black penciling to a solid black band which is edged completely with chestnut brown.

**Breast:** Under-color dull black; surface color copperish bronze each feather edged with velvet black the edging becoming wider toward the fluff.

**Body and Fluff:** Body dull black; under color of upper thighs dull black, each feather having a copperish bronze band on surface bordered with band of black and terminating in an edging of chestnut brown. Fluff black, tipped with chestnut brown.

**Legs and Toes:** Lower thighs dull black lightly edged with chestnut brown; shanks and toes in mature specimens pinkish red; in young specimens dark almost approaching black.

### Color of Female

Beak, eyes, throat-wattles, legs and toes same as those of male.

**Plumage:** Similar to that of male, except an edging of chestnut brown on feathers of back, wing bows, secondary coverts, breast and thighs. The edging should be narrow in front, gradually widening as it approaches the rear of the specimen.

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# Financing Turkey Growers

By John T. Bartlett

*Condensed from Feedstuffs*

THE Hanna Turkey Store of Fort Collins, Colo., does a flourishing year-round business. Mrs. Hazel Hanna conducts the business with the aid of one general assistant. The large sign on the building front includes "Finance" as one function of the business. It is, in fact, the basis of the whole enterprise. The Hanna Turkey Store brings in 100,000 poults in a season and sells many of these on finance deals which call for feed supplies and remedies. The store supplies all these financed growers and deals heavily with others. This system not only provides a merchandising profit for Mrs. Hanna, but assures that growers being financed handle their growing turkeys in the most efficient way.

The background of this unique business goes back to 1927, when Mrs. Hazel Hanna was the principal force bringing about the organization of the Larimer County Turkey Growers Association—a growers' pool. She was a successful rancher and turkey grower (this year she is raising 3,000 turkeys). She became and still is the president and manager of the turkey pool. Often there are pools from October to February. A single month's pool has contained as many as 26 carloads.

### Why Financing Was Needed

The depression came along and with it hard times in the turkey industry. Breeding stock was sold off. Growers needed financing. The first turkey financing in northern Colorado, perhaps in the country, was undertaken as a result of a plan worked out by Mrs. Hanna and "sold" by her to a big packing company active in the northern Colorado turkey deal.

Later Mrs. Hanna determined that financing was probably a permanent feature of turkey growing in northern Colorado. Her observation and experience showed that finance and operation of a store practically went hand in hand, for with this set-up the interests extending finance service could assure themselves that correct feeding practice was being followed. There would also be a check to assure that all feed bought against a turkey finance credit was feed for turkeys. So Mrs. Hanna established the "turkey store."

A year's operations really begin many months before. Mrs. Hanna announces how many young turkeys she plans to bring in from California and invites applications. In late July, thousands of 1939 poults already had been applied for. In December, January and February, she is busy lining up her deals, for the young turkeys begin to arrive in March, and shipments come in at frequent intervals until June 1 (biggest single day's receipts in 1938, 10,000).

### Not All Requests Granted

Before granting a deal, Mrs. Hanna always visits the ranch and inspects the premises. The general rule is that the ranchers shall pay 25 per cent of the cost of the young turkeys, but far more in the way of security is looked for than this.

"I do business with some of the richest, and some of the poorest, farmers in northern Colorado," Mrs. Hanna said. "Will the rancher do a good job of raising the turkeys? That is tremendously important. This is on the basis of instruction which I shall be giving, as needed, throughout the growing season. I grant finance service for perhaps 75 per cent of the number of turkeys for which it is asked. I turn down a considerable number of requests. Each year, I discard some of the growers and replace the next year."

The rancher applying for 400 poults may have his allotment cut down to 200. Mrs. Hanna doesn't like to play with much larger figures that this on a first deal. Again, she may find that facilities are limited. In this connection, she is constantly advising farmers how to remodel and improve buildings to render them suitable and efficient for turkey purposes.

### Frequent Inspections Made

Operation of the finance and store business calls for frequent flock inspections right through the spring, summer and fall—up to and including the marketing process. The highly skilled grower receives comparatively few visits; the inexperienced or careless grower receives many. Mrs. Hanna spends almost all of her forenoons in visits. The mileage she runs up is impressive, inasmuch as she handles a business which covers a territory of 40 to 50 square miles.

If she finds that the grower is neglectful, she talks "hard," and makes him realize the importance of carrying out instructions carefully. If there is a suggestion of disease, she requires the purchase of remedies at her store, and their immediate use.

If a grower, as summer comes on and new grains are cheap, is inclined to get away from standard poultry feeds and effect an economy, she fights the tendency and explains its danger.

When fall comes, she handles each flock so that it is sold to the very best advantage. The turkeys, of course, go into the pool which she manages for the organization which she directs.

From "West Colorado Turkey Enterprise Initiates New Field in Poultry Finance," Feedstuffs, Nov. 12, 1938. Miller Pub. Co., Minneapolis, Minn.

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TOWARD the end of the civil war in Spain, every apartment or flat in Valencia, no matter how rich or how modest, had one or more chickens, according to a correspondent of the New York Times. A chicken became so valuable that its owner would keep it on a leash while doing errands.

# POULTRY RESEARCH

## Detecting Fowl Cholera Carriers by Blood Testing

The application of a stained-antigen, rapid, whole-blood test for fowl cholera infection and the removal of reactors contributed in an essential way to the control of cholera in a flock belonging to a large institution in the District of Columbia, according to Warren B. Shook and Hubert Bunyea, U. S. Department of Agriculture, in Poultry Science (March, 1939, Vol. 18, No. 2).

Of 268 birds that died in 1935, 210 of the cases were diagnosed as fowl cholera. Of 210 birds that died during March, April, May and June of 1936, 148 died of this disease.

In 1936, a stained-antigen was prepared for the test from bacteria isolated from birds known to have this disease. The entire flock of 2510 birds was tested, with 139 birds or 5.5 per cent reacting.

During 1937, no fowl cholera cases were diagnosed and mortality as a whole was much lower.

Until the efficiency of this method of controlling fowl cholera is confirmed, this stained-antigen for use in a whole-blood test will not be ready for general use, and is not being prepared commercially, but it may open the way to the control of this disease as pullorum disease is controlled.

## Rapid Pullorum Test Proves to be Reliable

The Rapid Method of Blood Testing for Pullorum Disease proved virtually as reliable as the tube test, according to reports by W. Schmidt of the German Institute of Animal Health. These conclusions are in accord with those of many other investigators. As a result, the Institute recommends that preference be given to the rapid method because of greater simplicity and economy in time and money.

—Carl H. Schroeder, Everybodys Poultry Magazine, April, 1939.

## Botulism in Turkeys

Botulism in turkeys is described by Drs. Coburn and Quortrup of the U.S.D.A. in the Jl. of Am. Vet. Med. Ass'n. The report is of interest because the water of a stagnant pool was demonstrated to be the source of infection. Then, too, the symptoms differed from those observed in other birds.

—Carl H. Schroeder, Everybodys Poultry Magazine, April, 1939.

## Iron Deficiency Causes Tumors on Legs and Feet of Turkeys

The use of a low-grade hen ration resulted in the development of tumors on the legs and feet of young turkeys, while turkey poults on the same ration supplement by iron (ferrous sulphate) failed to develop tumors, according to M. W. Emmel, Florida Agricultural Experiment Station, in the Journal of the American Veterinary Medical Association, March, 1939.

The tumors, which were hard, numbered from one to eight per extremity. Eleven of 14 poults developing these tumors died under three weeks of age, apparently from low resistance caused

by the spread of the infection from the tumors throughout the body.

"Mechanical injury to the skin of the feet and legs of young poults of similar age and on the same ration resulted in the development of tumors in five out of ten poults added to the affected group."

## Chondroitin Sulphuric Acid and Gizzard Erosion

Chondroitin sulphuric acid had no definite protective effect upon nearly 400 chicks given gizzard erosion producing diets in studies by L. A. Crandall, Jr. and F. F. Chesley of Northwestern University and R. E. Gray and H. E. Robinson, Swift and Company, Chicago, Ill., and reported in The Journal of Nutrition (Jan. 10, 1939, Vol. 17, No. 1). This substance did appear to have a favorable effect upon the nutrition of the chicks in the presence of certain dietary deficiencies. The experimenters suggest that any slight influence upon gizzard erosion may be the result of a general nutritional improvement rather than the action of a specifically protective substance.

The same experimenters report in The Journal of Nutrition (Mar. 10, 1939, Vol. 17, No. 3) that a 3 per cent level of chondroitin sulphuric acid apparently was the best for growth in the basal ration they fed the chicks.

## Pullorum Disease Transmitted to Guineas

What is believed to be the first recorded instance of pullorum disease in guinea fowl is reported by Hubert Bunyea, U. S. Bureau of Animal Industry, in the Journal of the American Veterinary Medical Association, March, 1939.

A brood of 300 guinea chicks was started on a Maryland farm in an enclosure near the location where pullorum disease had reduced a flock of 200 White Leghorn chicks to 25 the week previously. In about a month's time, the brood of 300 guinea chicks was practically wiped out. In the bacteriological examination, the pullorum disease organism was isolated from a dead guinea chick. Pullorum disease of chicken origin was successfully transmitted by inoculation to guinea chicks in the laboratory.

While guinea chicks are not ordinarily hatched in incubators, it is suggested that guinea eggs should not be set in incubators except where pullorum-infected eggs have been excluded; also, on the farm, guinea chicks should be kept from any possible contact with pullorum-diseased hens or chicks or premises contaminated by them.

## Breeding Improves Family Livability

Selective breeding for family livability has demonstrated its practical value in long-time experiments conducted at the Pennsylvania Experiment Station. Breeding was limited to individuals from families which had demonstrated to "have what it takes" to escape fowl paralysis, leukosis and the other ailments which are largely responsible for high pullet mortality.

As a result, during the period from 1932 to 1937, the death rate was reduced from 40 to 20 per cent for the Leghorns and from 49 per cent to 25 per cent for the Barred Rocks. Such selection for family viability did not impair such economic values as number and weight of eggs produced, body weight and age at first egg. The average production at the beginning of the test was 191 eggs per bird for Leghorns as against 205 eggs at the end of the 5-year period reported by Dr. Dean Marble before the annual meeting of the Pennsylvania State Poultry Association. For the Rocks, the corresponding production figures were 200 and 219 eggs, respectively.

Hen chicks tended to be endowed with greater livability than pullet chicks.

Definite signs of substantial progress were recorded after the second year of selection.

There are differences of opinion as to the technical causes which account for the reduction of mortality by selective breeding from birds coming from families which have a high survival rate. Whatever the mechanism might be, these and other investigations demonstrate the practical value of this method.

Dr. Marble advanced the following suggestions for the reduction of pullet mortality:

A. If flock is not affected with paralysis:
  1. Bring in no outside stock except from another clean flock.
  2. Avoid contact with affected birds on premises.

B. If flock is affected with paralysis:
  1. In pedigree breeding select healthy yearling or older birds from resistant families.
  2. In flocks not following a pedigree system:
    a. Use old hens as breeders rather than pullets.
    b. Use only birds with reddish-bay eyes.
  3. If outside stock is introduced, obtain it from flocks which have been exposed to the disease and developed resistance to it.

There is some evidence which suggests that to "use only birds with reddish-bay eyes" might not always be the most desirable practice; however, it seems that the elimination of birds with "grey, glassy" eyes is good advice until we have conclusive evidence to the contrary.

—Carl H. Schroeder, Everybodys Poultry Magazine, April, 1939.

## Cold and Gas Methods of Egg Storage Compared

Selected, first quality, unwashed eggs, held for four days at a temperature of approximately 52 degrees Fahrenheit, were stored under the following three systems at the Low Temperature Research Station, Cambridge, England: (1) cold storage with control of humidity only; (2) partial gas storage (cold storage with control of humidity and the addition of 2 to 2½ per cent of carbon dioxide); (3) full gas storage (cold storage with addition of 60 to 100 per cent carbon dioxide but no control of humidity); as reported by T. Moran in Poultry World, Feb. 24, 1939.

Rejects in all three methods at the end of nine months of storage were less than 1 per cent.

Cold storage gave satisfactory results up to five months, after which period a certain proportion developed "storage taste," particularly noticeable in boiled eggs. The air cell enlarged as the storage proceeded, the white became distinctly yellow, thin white became viscous, thick white became weak, and the yolk became flabby.

Partial gas storage prevented the development of storage taste, the air cell was large, white was faintly yellow, thin white was viscous, thick white and yolk were both firm. Shells were slightly rough.

In full gas storage, the air cell remained small, white was faintly yellow, thin white became very watery, thick white was firm but considerably shrunken, yolk was firm, and there was no storage taste. This method was the most effective in preventing rots. In the saturated atmosphere, shells became rough with a calcium bicarbonate deposit, particularly noticeable on brown eggs, but it was found that this could be prevented by maintaining the humidity just below saturation.

Partial gas storage had definite advantages over the other methods tried in this test, as it prevented storage taste which developed in eggs held in cold storage, and prevented watery whites, which developed in the full gas storage method. There were not sufficient data for a comparison of the three methods under commercial conditions.

## Calcium in Fresh and Storage Eggs

Since eggs are known to be a good source of calcium in the human dietary, it is of interest to determine whether the calcium content is affected by ordinary management conditions to which the laying flock may be subjected.

At the Kentucky Agricultural Experiment Station individual analyses were made of the yolks of 193 fresh and 149 storage eggs from hens which had been confined indoors with no direct sunshine, some with and some without cod liver oil in their ration. Some were given access to a wire-screened sun porch. Others were allowed out on bluegrass range, some with and some without cod liver oil.

The results showed that any one of the vitamin D supplements tended to increase the calcium content of the egg yolk. Bluegrass range plus sunshine was no more effective than sunshine alone, whether with or without cod liver oil.

The calcium content of the yolks of storage eggs was higher than that of fresh eggs.

—L. E. Card, Poultry Tribune, April, 1939.

## Retail Price of Eggs Related to Size and Quality

The relation of quality to retail price of eggs has been studied in Rhode Island by H. C. Fowler. This Rhode Island Bulletin 265 contains a number of interesting items. For instance, the price of cold storage eggs was about 65 per cent of the price of nearly fresh eggs; size was an important cause of differences in egg prices, especially when the supply of pullet eggs was at its highest.

Small eggs brought 81 per cent of the price of large eggs in April, but only 60 per cent in October; eggs displayed in cartons sold for about 2.5 per cent higher, which is equivalent to a difference of about one cent per dozen. This figure does not take into consideration the value of cartons identifying the producer of quality and thus establishing a demand for that particular brand of eggs.

—Carl H. Schroeder, Everybodys Poultry Magazine, April, 1939.

## Instinct as a Guide to Correct Diet

It is sometimes claimed that chicks and other young animals have the instinctive ability to choose the proper ingredients or mixtures of ingredients to make a complete diet and to guard against any nutritional deficiencies, provided they have access to all the necessary food materials.

A series of experiments dealing with this interesting question recently has been reported from the University of California. Among other things, it was found that chicks could discriminate consistently between normal or control diets and those which were distinctly salty, bitter, or sour. They disliked the latter three and would not eat them if other feed was available. They did not, however, show any preference or distaste for diets containing as high as 20 per cent of sugar.

Chicks deficient in vitamin G, when given the opportunity to choose between a bland basal diet containing the vitamin, and a diet lacking the vitamin but flavored with dehydrated molasses, chose equal quantities of each, regardless of whether they had previously been fed a flavored or unflavored ration.

Similarly, chicks deficient in vitamin G (lactoflavin) when offered a choice between dehydrated alfalfa meal and a bland basal diet lacking the vitamin did not choose sufficient quantities of alfalfa meal to prevent an acute deficiency of vitamin G.

—L. E. Card, Poultry Tribune, April, 1939.

## Early Maturing Turkeys Start to Lay Earlier

Early maturing turkeys start to lay about six weeks earlier than late maturing strains and they laid about 20 more eggs before May 1st in tests conducted by Dr. V. S. Asmundson of the University of California.

—Carl H. Schroeder, Everybodys Poultry Magazine, April, 1939.

## Selecting Hatching Eggs on the Basis of Shape

Shape of eggs appears to have very little to do with hatchability. T. S. T. Watson in the South African Poultry, Pigeon and Bird Magazine, March, 1939, reports a selection of 1,508 pullet and hen eggs according to the following classifications: normal in length and width, long and thin in relation to length, and short and thick in relation to length. The difference in hatchability of the various groups was not sufficient enough to warrant general selection of hatching eggs on this basis.

## Grasshoppers as Protein Supplement for Turkeys

Neither high mortality nor reduction in growth need be feared in young turkeys fed a high percentage of grasshoppers, recent experiments by T. T. Milby of Oklahoma A. & M. College show, as reported in Agricultural News Service of Oklahoma A. & M. College. Earlier experiments had resulted unfavorably, due probably to changes that took place in the grasshoppers during the killing and drying process.

In the recent tests, poults that were killed, dressed and frozen after being fed for 6 weeks on dried grasshoppers, and then cooked several months later, had no fishy or other undesirable odor or flavors.

Milby placed one-third of several hundred pounds of the insects in a steam-pressure cooker for 45 minutes, then spread them in the sun to dry, later ground them into meal. The other two-thirds were quick-frozen at zero to 10 degrees Fahrenheit; part were later dried in the sun and ground into meal.

Frozen grasshoppers, when supplemented with some animal protein in mash, gave excellent growth for a short period. Dried, ground grasshoppers, substituted for a mixed protein supplement on an equal crude protein basis, however, did not support normal growth. To utilize grasshoppers economically, turkeys must have a good growing mash all of the time.

## Battery-Raised Chicks Heavier at Six Weeks of Age

It was observed in a test conducted by H. E. LeMasurier, University of Toronto, and H. D. Brannion, Ontario Agricultural College, and reported in Poultry Science (March, 1939, Vol. 18, No. 2), that up to 3 weeks of age, chicks raised on the floor were heavier than chicks raised in batteries, but at 4 weeks the battery chicks showed a faster growth rate, and at 6 weeks the battery chicks were considerably heavier than the floor chicks. Chicks raised on the floor were greater in stature, but the battery chicks were more rounded at the breast and were more generally plump. All bones of the battery chicks, and particularly the long bones, were thicker and had a greater proportion of calcium than bones of the floor chicks.

## Effect of High Temperature on Quality of Infertile Eggs

Infertile eggs held at 90 degrees for 24 hours, then stored at 35 degrees for 6 days, and infertile eggs held at 100 degrees for 18 hours, then stored at 35 degrees for 6¼ days, contained approximately 9 per cent less thick albumen than infertile eggs stored at 35 degrees for 7 days, in an experiment conducted by M. W. Olsen at the Agricultural Research Center, Beltsville, Md., and reported in Poultry Science (March, 1939, Vol. 18, No. 2).

## Vacuum-Dried White Fish Meal as a Source of Protein

In a study to determine protein requirements for growing chicks, University of New Hampshire poultry scientists, working with more than 1,000 chickens over a three-year period, found that vacuum-processed white fish meal is far superior to either dry skimmilk or meat scraps in supplying protein to chickens.

Chickens fed a fish meal ration containing 19 per cent protein as the sole source of protein concentrate not only laid at a heavier rate and produced a greater number of eggs per bird than groups fed dry skimmilk or meat scraps, but also produced eggs at the lowest cost per dozen and laid several days before the other groups.

Groups of chicks fed a protein mixture and fish meal supplements were significantly heavier in weight at 12 weeks of age than were the meat scraps or dry skimmilk groups.

There was no distasteful odor or flavor to either the eggs or the meat of the birds fed on fish meal.

—University of New Hampshire Extension Release, March 18, 1939.

TWO DOGS were held by the police "for investigation," in Toledo, Ohio, after the slaying of 83 chickens at the farm of David Walker, poultryman. Investigating officers said burrows had been dug under the chicken-coops housing the fowls. Paw-marks were found on the premises. The dogs were "sentenced" to the pound for "wholesale chicken-thieving."

—American Poultry Journal, March 1939.

# Factors for Successful Shows

By Mrs. H. A. Daniels

*Condensed from Cackle and Crow*

SO many reasons have been advanced during the past decade for the decreased interest in competitive shows of live stock, especially poultry and pet stock shows, that many have lost sight of some of the real facts.

### Good Exhibits Essential

The things needed to make a successful show are as follows: — and remember that these rules apply to any kind of show, be it live stock, handicraft, automobile or commercial —first we must have creditable exhibits with as many exhibitors as possible. This means a good display space must be provided, proper care taken of exhibits, reasonable entry fee and competent judging.

### Fair Prizes Needed

To stimulate entries there must be fair prizes, plenty of advertising and good attendance. Attendance is one of the things vital to any show. Now many folks will go to a show to see the display of exhibits—but special interests will draw many more, thus stimulating interest in and recruiting new devotees of the game—swell the ranks of local association membership —become customers of established producers in that line.

A creditable show attracts the interest of commercial folks who supply the needs of that particular enterprise, so this becomes a legitimate and sound source of revenue—the rental of display space for all accessories sold to the exhibitors.

In the final analysis, each well run show which embraces a high class competitive interest, special attractions, educational features (usually a short lecture program) and patronage by allied commercial interests becomes an exposition of that interest represented.

I have seen the show business from the standpoint of an exhibitor, a spectator, member of state fairs board, judge, manager, member of educational program committee. I have handled the secretary's job, which covered not only work connected with entries, but also making up feature attractions, soliciting prizes and entire job of premium list and catalog. From all these angles I can truthfully state that a show to be a success must be handled so it will represent the greatest possible number of interested people from exhibitor to the gaping spectator "ohing" and "ahing" down the aisles. It must represent sales to the exhibitor and to the space buyer, entertainment and information to the public and a lot of hard work for those keenly interested enough to tackle the job.

### Free Admission Would Be Ideal

The ideal show of any kind is the one where no gate charge is made. Where ways and means can be provided to make this possible, it will bring the crowds, and out of those crowds are the potential recruits.

In some cities where either finances or facilities do not provide adequate hall room, it is possible to get the cooperation of some of the business men and get a vacant store at little or no charge. This has the advantage of on-the-spot publicity. Street floor space in the busy section of any town or city will bring the crowds.

Cackle and Crow, New Haven, Conn., Jan. 15, 1939

The poultryman has lost many a fine opportunity to make the general public more egg and chicken-on-the-fork conscious. Think what it would mean to the poultry man to have a window display (in conjunction with a poultry show) of eggs ready to eat in a dozen ways and of the possibilities of a 5-pound roasting chicken.

### Keep It Out of the Red

One thing to remember is to plan the show so it will stay out of the red. Better a show of 100 entries with all bills paid and all prize money paid on the closing night than the other kind. Cooperation on the work will aid to this end materially—and a determination not to try to "show off" will help also.

To help build the local organization, I would suggest that prizes be placed so that there would be some really worth while ones limited to either members of the local organization or to residents of a certain district. Sometimes, the latter works out the best. I would also suggest that some really valuable prizes be obtained and placed on junior, novice or beginner or first-show entries. Cash and valuable commercial prizes will do more good, for the show and its future, if placed below first. Winning first prize or some of the outstanding specials should be reward enough.

In placing specials, I have always tried to make the lesser wins worth something. In soliciting specials (especially commercial) it is best, if possible, to get them without strings, so the committee can put them where needed. I do not like the idea of medicines being used as prizes. The psychological effect isn't good. Almost anything else is excellent.

In the end, however, we will find the most successful shows where everyone is interested in the greatest good and happiness of the greatest number. I have worked with some of the best showmen in the country, and in every case, they were promoters of whatever they were backing — not promoters of themselves.

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❝ ONE REASON why the average cadet at the United States Military Academy, West Point, N. Y., grows more than half an inch and gains about 7½ pounds by the end of his first year there is that eggs greet him at breakfast three or four times a week and enter into foods for other meals. Each cadet gets a dozen eggs a week, but he will not eat scrambled eggs because of an erroneous tradition, carried down through the years, that scrambled eggs are made of egg powder and no self-respecting cadet should touch them!

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❝ GOOD COOKING is sheerly creative and experimental. Richelieu, one of the greatest cooks of all time, invented mayonnaise by just fooling around with an egg in ordinary French dressing. In this age of science, such a delicious mistake could never occur.
—Ted Shane, Collier's, March 18, 1939.

# When Should Cockerels Be Sold?

By H. A. Miller

*Condensed from Atlantic County Vocational Bulletin*

MANY poultrymen are beginning to wonder what the best policy will be in the disposal of the surplus cockerels, particularly of the Leghorn breed. Only a few years ago the sale of broiler cockerels helped materially in carrying the cost of raising the pullets to maturity. Ten years ago broilers accounted for 25 to 30 cents in the cost of pullet raising. Even two years ago, when broiler prices were higher, they figured into the costs quite materially. However, this year the promise is not so good. True it is that feed prices are still at their low points and the prospect of very much higher feed prices is not evident. However, it becomes a question whether the poultryman should kill off or sell if possible the cockerels as soon as they can be distinguished at three to four weeks of age. This discussion applies only to the Leghorn breed.

There are several points of view that poultrymen must take in making this decision.

### More Room if Males Are Sold

1. In most cases, poultrymen do not have room to carry extra cockerels unless there is definite promise of a fair profit. Usually the pullets suffer in an attempt to hold the cockerels to the marketing stage. If this is the case, it would seem advisable to dispose of the cockerels, as the need for a well raised profitable pullet is more important than trying to break even in the cost of holding the cockerels until they are marketable. This is one reason why sexed pullets are gaining more importance among poultrymen. Should the unprofitable relation for broilers continue for a few years, sexed pullets probably will increase very rapidly.

### More Feed for Later Growth

2. The cost of feed for the additional growth in many cases causes the operator a financial setback which could be used to better advantage particularly if he can be shown that the spending of the money for the feed is profitless.

The general tendency is for broiler prices to get lower as the season advances and the supply increases. In the meantime, the broilers are increasing their feed consumption. In some cases this money saved from the additional feed needed can be used in securing more chicks.

3. A given number of pullets can be raised with less chick equipment, such as brooders stoves and feeders, if cockerels are eliminated at the three-weeks stage.

4. Cockerels seem to be a problem if diseases such as coccidiosis break out before they are marketed. In some cases it means the holding of the birds long beyond the proper age in order to rid the birds of disease and the operator finds that there has been a large loss resulting from the operation.

### Estimated Rearing Costs

The following figures will help the poultrymen to determine the possibilities that exist this season. These figures are based on a conservative average of food consumption, rate of growth and mortality. No allowance is made for the overhead costs or labor.

Atlantic County Vocational Bulletin, Pleasantville, N. J., March, 1939

### Cost of Growing 1,000 Ten-Weeks Old White Leghorn Cockerels

| | |
|---|---|
| Average cost per chick–11 cents ... | $110.00 |
| Fuel cost per chick–2 cents ....... | 20.00 |
| Litter cost per chick–1½ cents .... | 15.00 |
| Feed cost 7 lbs. per chick for 10 weeks–2¼ cents a lb. ............ | 157.50 |
| | $302.50 |

Mortality of 8%—920 broilers left.

Avg. weight at 10 weeks 2 lbs. or 1840 lbs.

| | | | | |
|---|---|---|---|---|
| Value of 1840 lbs. at | 14¢ | per lb. | | $257.60 |
| " " " | 15¢ | " | " | 276.00 |
| " " " | 16¢ | " | " | 294.40 |
| " " " | 17¢ | " | " | 312.80 |
| " " " | 18¢ | " | " | 331.20 |

From the above figures it will be noted that the cockerels will just about cover expense of feed, litter and fuel when sold at 17 cents per pound. Should any disease problems enter the situation, the chances of a profit are even less.

At the present time broilers have been selling at the Auction Market at Vineland for 14½ to 17 cents per pound. It seems that in many cases it would be advisable to sell off the cockerels at whatever price can be secured for them at 3 to 4 weeks of age.

In the case of those who are willing to sell cockerels at the three-week period, it is possible to obtain from 5 to 6 dollars per 100 birds at the three to four-week period. This will entail a small loss to the operator but when the above mentioned points of space, better pullets, conserving feed, money, etc., are considered, the writer feels that the operator will be following a wise practice.

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# *A Little History of Our Turkey*

When Cortez, in 1519, first reached the realm of the Aztecs, Montezuma entertained him with royal splendor, and among the delicious foods set before the Spanish invaders was roasted turkey. It was found that the Aztecs had domesticated the fowl to quite an extent, and that it was also plentiful in its wild state. North of the Rio Grande River the bird was equally well known, and Coronado found it among the cliff dwelling Indians and other tribes he met on his expedition. The historic Zuni Indians seem to have known of the turkey for centuries, and many of their earliest traditions deal with this interesting bird. Not only did it serve as food, but its feathers formed adornment in the head-gear of the Indians and embellished the garments of the women, beside lending accuracy to the flight of their arrows.

Thus, while our own wild turkey is a true and native son of our forests, the domestic turkey, which is so familiar today, came neither from Turkey, as some suppose, nor even from our own woods, as others assume. It is in reality a sort of Europeanized Mexican, and before it came back to us on the continent, was obliged to travel from Mexico to Spain, from Spain to England, France, Italy, and probably Germany; and long before it graced a Thanksgiving dinner table this side of the Atlantic, it became a famous serving at the wedding banquet of Charles the Ninth of France in 1570.

—The Rural New-Yorker, Dec. 19, 1938.

# Diary of a Poultryman

By P. S. White
Egg Farmer, Wayne County, Ohio

*Condensed from Everybodys Poultry Magazine*

**April 1**—How time does fly! It is chick time once again and we must get started on the brooder houses. Although the houses were cleaned and disinfected last fall and even though the eggs haven't been set, it is high time to think about getting the houses ready. And ready means exactly that, so that all we have to do is to place the chicks around the stoves.

Preparedness is the watch word for successful brooding, that is, if one watches for old coxy, worms, bronchitis, hawks, skunks, dogs and what have you. I haven't forgotten the dog that mowed the chicks down last year. Sixty pullets, if I recall correctly, were worth more than the dog.

**April 2**—Yesterday, when I took the eggs to the auction, Ralph Treat, Ralph Sheppard and I had quite an extended argument on interior egg quality. They say that quality is slipping, that the yolks are getting heavier. By "heavier" they mean that the yolks are becoming a deeper yellow.

Verne Chamberlin told me a few days ago that the Experiment Station eggs lost a grade on the auction. But Verne wanted good hatching eggs and had given the breeding stock free range some days previous. Naturally, the birds ate lots of tender, green grass, which in turn imparted a good, yellow color to the yolk. The auction boys say such a procedure is hard on good quality market eggs, but a good quality chick in the hand is worth a whole incubator full of dead in the shell. Yes, and a thousand times, yes.

**April 5**—So far this month, I haven't said a word about the work that has been going on at the ranch. But we have been working. Yesterday, we started on the three bended-bow brooder houses.

Walter Buss phoned today that the chicks for these houses would be delivered the afternoon of the 25th, 1,500 of them. The balance, 3,000, will be delivered on the 28th. It takes time to get a brooder house ready for chicks. I figure a day to the house, even though they were cleaned and disinfected last fall when the pullets were taken from the range.

**April 7** — The three bended-bow rafter brooder houses are now ready for chicks. All we have to do is to fill the mason jar chick fountains and light the tin can oil burning brooder stoves. We gave the stoves a practical test out today. They were cleaned and re-cleaned before they were set up, and so they worked. They beat and banged and pounded on the floor, puffed and roared and bellowed in the chimney. They had it bad; there is no question about it. If my interpretation of the word "spizzerinktum" is correct, then that is what those stoves have.

Newspapers spread around the stoves covering the peat moss, prevent the chicks from eating the litter until they learn what they are supposed to eat. A crop full of dry litter means a dead chick and quick, too.

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(Everybodys Poultry Magazine, April, 1939)

**April 8**—Ralph Treat informed me today that the entire auction force, including the office staff, was going over to visit the Butler, Pa., Auction next Sunday. He invited me to go also. I feel highly honored that the young folks should want me, an old fellow dragging both feet through the grave, to share their pleasure. I am looking forward to the trip for I know we will have a good time, just can't help but have. Anyway, I had pleasant thoughts this afternoon thinking about it while cleaning the dropping boards. They say that anticipation is 50 per cent of realization, and perhaps it is.

I still contend that a rubber-tired wheel barrow is the berries when it comes to hauling manure. It is so easy to spread it on the land, for one is right there and no reaching across a truck body is necessary.

**April 9** — Saturday, and Donnie White was home all day. Donnie knows the routine work just as well as I do, so when he is around, we try to get all of the extra work done that we possibly can. First the lawn was mowed, apple pomace barrels filled for the cows and all feed rooms and the garage swept. Then we started preparing the remaining six brooder houses for chicks.

It takes time to set up an oil stove if it is done properly. We don't use any guess work at all, but use a spirit level and level it across the top—east and west then north and south. The smoke stack, a 5-inch galvanized pipe is placed and then removed. A gallon bucket is placed over the roof flange to prevent rain entering. If we don't do it this way, the stove is apt to collect water.

**April 11**—A high-class cold, intestinal flu they call it, mowed me down yesterday morning. I realized I would not be able to make the trip to Butler, Pa., with the auction boys, so Kid White phoned Ralph Treat to that effect. Just about all I did today was to pack the eggs, and from the way I felt, I should have been in a hospital.

**April 13** — A rather peculiar thing happened today in the west house. At each gathering of eggs, at 8, 11 and 2 o'clock, the count was 116, and the 5 o'clock count was 16. Three hundred and sixty-four eggs from 550 two-year old hens isn't to be sneezed at even at this time of the year. The interior quality is running high, too.

Last week's official grading on the Auction was 93 per cent U. S. Extras or better, 4.5 per cent U. S. Standards and 2.5 per cent trades. This is 23 per cent higher than the entire auction ran in the top grades. In simple language, so many producers are not taking proper care of their eggs.

**April 18**—One week from today and I will be brooding chicks, 1,500 of them. Ten days from today and the fight will be on in earnest. I will be the sole guardian of 4,500. It will be a fight, too, as to whether I get the chicks or Old Coxy, gaping diseases, worms, bronchitis, dogs, cats, crows or hawks get them. To be perfectly frank, I think all of us will get a share, but I am selfish enough to want them all. I want more than the lion's share, but on the other hand the diseases couldn't flourish and prosper if they didn't have subjects upon which to reproduce. This is a charitable way to face the situation, but experience tells me that the Old Man always pays the bill.

**April 19** — If nothing goes wrong, but it usually does, today should see all the brooder houses ready for the chicks. The card board chick feeders have been set up and the feed is at hand. Nothing to do but set the smoke stacks in place and fill the fountains. All the oil tanks have been filled. The supply barrels, 300 gallons, are full also. What a grand and glorious feeling!

**April 25**—They are out there in the houses now—1,500 of them. And they are big, husky fellows, too. Walter Buss phoned that he would be here at 1:30 P. M. He was and like Old Finnigan—off again, on again, gone again—he was out of here in 15 minutes with the empty chick boxes. We don't stand around and pass the time of day, but get the chicks out of the boxes. That is the big idea, get them out and under the stoves, get them out where there is feed and water. They will grow better when they are out of the boxes. I will sleep out there around the hovers with them tonight. If anything should happen, I want to be there abouts. It is somewhat a force of habit, but if anything should happen, it will pay a big dividend to have been on the job.

**April 26**—I am getting in that class myself, for I didn't lose any chicks the first night either. But it can't last, some of them will surely die. There always are some losses, and I suppose there always will be. It is a good old poultry doctrine—what is to be will be.

The boys concoct all kinds of schemes to prevent chickens from dying, the fountain of youth so to speak, but I just plod along and incinerate them. I guess I have my quota in Prof. Dakan's five million dead hens that march 16 abreast across Ohio each year. That is an army of dead hens in any man's country.

**April 27**—They thump, pound and roar when fired up. That is the way these tin can, oil burning brooder stoves are acting out here on the range tonight. I have officially moved out for the duration of the brooding season. It seems, though, that I have moved to a combination boiler plant and barn yard. When the stoves are not making industrial noises, they make any kind of old racket. Just a few minutes ago the stove in No. 2 started emitting a noise like a mule, braying at the break of day. And did I tear up there? When you give them the gun, so to speak, they get hot. A slight breeze is blowing which makes the draft that much stronger. Oil stoves need a heavy draft to function properly.

**April 28**—It pays big dividends to be prepared. Walter Buss drove up to each house and unloaded 500 chicks. On the way back, he picked up the empty boxes. It was the first time that he has ever brought chicks out that it either wasn't raining or the car mired. We both remarked about it. But it was a coincidence that it rained right after he left.

**April 29** — Well, the first night of brooding was ideal. I gum-shoed around over the range several times and everything was hunkey-dorey. The tin can stoves were percolating perfectly so I retired to snatch some sleep. It is the old army game, get all the sleep you can for there will be times when no sleep will be available.

Anyway, his troubles are all over and mine have just started. In fact, my troubles will continue until the pullets are housed this fall. Then the responsibility will start all over. Out here on the range, I will have the known and unknown with which to contend. It will be a continuation after the pullets are housed. We chicken men catch it from all angles.

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# Meeting the Poultry Mortality Problem

By J. Holmes Martin

*Condensed from a Talk*

THAT mortality among laying hens has increased rapidly during recent years is a story too well known to need further comment. A glance at the poultry mortality situation during the past 25 to 30 years shows that many of the results of research which have been put into practice have led to considerable reduction in embryo mortality and chick mortality. The hatchability of eggs and viability of chicks have increased to levels that are highly practical while, on the other hand, the laying house mortality has increased with staggering rapidity.

Much valuable research by pathologists and bacteriologists has been interpreted into practice through the testing and eradication programs that have brought about a very considerable reduction of mortality from pullorum disease and tuberculosis. The knowledge of life cycles of internal parasites and their intermediate hosts brought to us through the studies of parasitologists has led to the adoption of sanitation practices and range rotations that have greatly reduced the hazards of rearing chicks. Vaccination has in some cases, notably fowl pox and laryngotracheitis, produced an artificial immunity to carry the bird past the period of its greatest susceptibility.

Management practices, when wisely followed, aid greatly in lessening the exposure of the flock to diseases and parasites. Control of coryza and chick bronchitis depends upon segregation and the avoidance of exposure through good management, rather than upon building up resistance through breeding, vaccination, or otherwise. Sanitation, which is of paramount importance in good husbandry, is of itself insufficient to reduce mortality beyond a certain level. This is borne out through the mortality rate of exceptionally well-bred birds cared for under the best of poultry management at the egg laying contests. F. B. Hutt summarized the mortality data from 13 contests from Maine to Arizona for 1936-37. The laying house mortality for 10,239 pullets entered in these tests was 24.2 per cent.

The poultryman must be ever on the alert for the first case of any disease or upset. Keen observation will indicate to him the proper procedure; whether isolation, treatment or elimination of the affected bird should follow. He must decide when the situation is serious enough to demand the attention of a veterinarian.

A pathologist who has spent much time in the study of animal diseases can many times detect possible avenues of entrance of disease that would not be apparent to the layman. The pathologist is aware of the tremendous amount of research that has been carried out with drugs and other products known to be effective in the treatment of diseases of mammals, but still of questionable value in the

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treatment of poultry diseases. Except for use in the elimination of certain internal and external parasites, drugs and medicines have not proved to be of great value to the poultryman. The matter of further necessary sanitation practices to avoid spread should be immediately settled. Sanitation must be practiced, it cannot be purchased. In view of the progress that has been made in successfully combating certain of the principal diseases, why this increase in mortality has occurred has become a challenging question.

When the future looked black for the growers of flax and most of the flax was "wilt sick" Professor Bolley of the North Dakota Station introduced a new technique and selected seed from the plants that resisted wilt. This was back in 1900 and now practically all of the flax grown is descended from wilt-resistant stocks. A similar story may be told in the breeding of cabbage for resistance to yellows, the breeding of wheat resistant for stem rust, and many other plants. In Germany they produced grapes that were resistant to the vine louse, and some progress is being made in producing corn resistant to the corn borer.

### Breeding for Resistance

It is with the thought of applying this technique of breeding for resistance to the problem of livability in poultry that geneticists and pathologists have joined efforts in the Regional Poultry Research Laboratory. Additional problems to be studied are the etiology and transmission of fowl paralysis, methods of diagnosis, and a search for specific agents that might aid in prevention and control. Other phases of the problem which may be undertaken as occasion arises are the effects of the ration on susceptibility to paralysis, the value of sanitary measures in prevention and control, and many other ramifications of the problem.

The work of the Illinois Experiment Station in establishing strains resistant to pullorum disease has lent encouragement to the possibilities of developing genetic resistance to paralysis and related diseases. Roberts and Card found that resistance to pullorum disease is dominant to susceptibility. Lambert and Knox, working at the Iowa Experiment Station on the inheritance of resistance to fowl typhoid, showed that selection for resistance through four generations materially decreased the mortality in the selected population. They concluded that this resistance was inherited and undoubtedly controlled by multiple factors, some of which showed dominance or partial dominance. Biely and Asmundson studied the inheritance of resistance to paralysis (neurolymphomatosis) as measured by exposing the offspring of both susceptible and apparently resistant groups. They found that a significant difference as measured by symptoms of paralysis and lymphomatous tumors, existed in the University of British Columbia flock. Kimber found a measurable difference in prolapsus between laying pullets of two unrelated families, when both groups were fed and housed together, and equally exposed in the same pen.

Without knowing the cause of fowl paralysis (leucosis and related neoplastic diseases) or the means of its transmission, the practical breeder has demonstrated that he can produce a population somewhat resistant to this disease.

Recent work indicates that in the California Experiment Station stock, paralysis has declined slowly during the past four years because of definite selection from among resistant stock. Susceptible families were carried along also as a check and selection was actually made for susceptibility; paralysis in this line remaining at a high level. Their conclusions are that a possible genetic basis exists for susceptibility and resistance to certain neoplastic diseases. Probably either the hereditary basis for resistance is complex or the resistance involves complicated inter-actions with non-genetic influences.

Before the nature of vitamins was clearly understood, poultrymen and pathologists were perplexed with several diseases such as rickets and perosis. When their efforts were aided by physiologists and nutrition workers, however, rapid advances were made. With considerable evidence before us today that resistance to disease is an inheritable factor, there is a good possibility that in a like manner comprehensive research will result in a clearer understanding of how disease resistance is inherited and a practical program for its application to the poultry industry.

### Linebreeding from Proved Families

While the breeder is awaiting results of future research on this problem, some program must be instituted which, with our limited knowledge of the application of genetic principles to disease control, seems to hold the greatest promise of results. In the light of the evidence at hand, a logical procedure would be to linebreed from large families of proved livability.

Contrasting families of considerable interest are shown in the offspring of two Rhode Island Red hens under identical management at the National Agricultural Research Center. A 220-egg hen (C-2283) producing eggs of standard size gave a hatch of 88 per cent. Among 15 daughters placed in the laying house, only 7 survived, the highest record being 152 eggs. A 230-egg hen (D-5099) laying 25-ounce eggs and giving an 85 per cent hatch had 12 daughters housed, 10 of which completed the year with records varying from 203 to 274 eggs.

### Progeny Test Tells

It is interesting to note that the poor breeder had no sisters, whereas the better hen had six sisters that averaged 228 eggs each; indicating that the hen from a large family of high layers was the safer choice as a breeder. Pedigree studies will reveal many similar cases to the breeder who has kept careful records. Only the progeny test revealed the vast difference between these similar matings that appeared nearly equal when placed in the breeding pen.

The progeny test is the "proof of the pudding." Pedigree and performance are of value in pointing the way, but the breeding value of a bird must in the last analysis be based on the progeny. "By their fruits ye shall know them."

It is obvious that a poultryman has a much better opportunity of success if his breeding stock comes from large families of viable, high producing birds. It is indeed unfortunate that many males are old and of little value as breeders by the time they are progeny tested. The best course to follow while awaiting the accumulation of data for the progeny test is to utilize males whose full sisters have matured early, laid at a high winter rate, attained desirable egg size by January, and shown low laying-house mortality during the fall and early winter. Such males should be mated to proved yearlings, or older hens.

I am of the opinion that one of the causes of the dilemma in which the poultry industry finds itself is that there have been too many "child marriages." I mean by this that with the rapid expansion of the hatchery industry, many pullets have been used as breeders even before they have celebrated their first birthday. As a consequence, we now have stocks and strains which are descended from years of matings of untested, untried, and in many cases short-lived bloodlines. Not but what one can make a profit from chicks hatched from pullet eggs. This has been done many times, but to use such chicks as future breeding stock only postpones the day of reckoning unless the pullets are from viable strains.

When breeding from yearling and older hens, only tried and proved birds should become parents of the future laying and breeding flocks. This eliminates the possibility of using as future breeders birds whose dams could not hold up under the severe strain of high egg production.

### 300-Eggers Over Emphasized

Focusing too much attention on the individual record (the 300-egg hen) has also led to much grief. In many cases the son of a 300-egg hen has become the sire of hundreds of chicks before it was learned that his sisters showed excessive mortality in the laying house. In many cases it is too late to correct this situation and he becomes a grandsire of hundreds of low-viability pullets.

In addition to breeding from mature stock, a conscious selection for large families and longevity should be practiced. There is little doubt but what long life is inherited in poultry as well as in humans. If the life insurance companies are interested in the age at death of the client's parents and grandparents, it might behoove the poultryman to think more along that line. Hen depreciation must be charged against the flock and paid for out of the egg basket. If the hen is culled and marketed, this charge is less than if she dies in the laying house or breeding pen. Just as with a car, the more miles the less the depreciation per mile, so also, the more eggs per hen the less the depreciation charge against each egg. We must think in terms of flock averages and of total egg production from a laying house that has been filled with pullets and place less emphasis on 300-egg records.

Many will say that breeding for resistance to disease, longevity, and large family size presents a long-time seemingly impractical program. However, where no other means for the control of a specific disease exists, genetic selection is advisable even though improvement of the stock comes slowly. The wise poultryman will follow sound practices for disease prevention and control and at the same time set about to improve his strain not only for egg production, physical evidence of vigor, stamina, and breed qualities, but also plan to include conscious selection for longevity and viability as measured through large families.

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A HEN in Walla Walla County, Wash., laid an egg normal in every respect except that the yolk was on the outside instead of the inside of the shell, according to Poultry Supply Dealer. A thin film of yolk completely covered the shell which in turn surrounded the albumen. There was no yolk inside.

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# The Roof Must Be Good

*Reprinted from American Poultry Journal*

THE roof of the hen house takes more punishment than any other part of the building. In the summer, the hot sun does its best to melt it, bake it, scorch it, or crack it. In the winter, ice and snow put their crushing weight and grinding action on it. In between the extremes of temperature, wind keeps tugging and tearing at it, rain washes it, and an occasional hail storm pounds it.

It is a tribute to roofing material manufacturers that in spite of the hard usage poultry house roofs get, they stand up year after year, keeping the flocks dry and preventing damage to lumber. However, a few precautions, will save a lot of work and expense later on. Most poultry houses are roofed either with composition material or metal. The composition roofing material may be of several types and may be used either with or without liquid tar. It may have slate surface or it may receive a protective coat of gravel imbedded in liquid tar. Each method of roofing has its advantages.

### Roofing Needs Foundation

It is quite generally conceded that in order to lay a good durable roof, there should be a solid foundation for the roofing material. One inch thick matched boards, nailed horizontally, are favored by most builders, although some are satisfied with rough, unmatched lumber. These horizontal boards nailed to each rafter give the roof and the house a rigidity that is highly desirable.

Most builders will place roofing paper right on top of the foundation boards. Sheet metal roofing is also nailed over boards, although there are some who believe that metal roofing needs no foundation boards. Some poultrymen like to place sheets of insulation board or tough, fibrous sisal paper on top of the foundation boards and then nail the roofing material over that. There are some also who like to use sheet insulation boards as a foundation, eliminating the horizontal matched boards. When sheet insulation is used in this manner, according to manufacturers directions, it, too, will give the roof rigidity.

Roofing material manufacturers recommend built-up roofs, that is, multiple layers of felt or roofing mopped on with either roofing asphalt or coal tar pitch for flat surfaces. Roofs with a slight pitch have enough water drainage so that roll roofings, smooth or mineralized can be used, but very steep pitched roofs should be covered with asbestos-cement or asphalt shingles.

One poultryman who recently built several houses used this method; in fact, he has used it with success on other houses he has built before. Here's how he did it. He nailed matched boards on top of the rafters. On top of this he nailed one-inch sheet insulation. This insulation he painted with hot tar, and on top of the hot tar he laid tar paper of 15 pounds weight. The hot tar made the tar paper stick to the insulation board, eliminating the use of nails to hold the paper. On top of this layer of 15-pound tar paper was pasted, with hot tar, another layer of 15-pound tar paper. The joints were overlapped at the halfway mark to insure complete sealing. On top of the second layer of tar paper was pasted, and again with

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hot tar, a layer of 45-pound tar paper. This in turn was painted with hot tar. The absence of roofing paper nails is a distinct advantage.

There are other methods of building roofs, and the safest practice is to follow the instructions of the manufacturers of the materials used. They have had years of experience and have laid thousands of roofs. Their experiences are varied and their advice valuable.

### Carefulness Chases Trouble

One point must be carefully watched in the construction of roofs. Wherever ventilating shafts or chimneys protrude you should have ample flashing to prevent leaks at the joints. Careful workmanship at the time of building will eliminate the need of numerous repair jobs later on.

However, roofs will deteriorate in time no matter how well they are built and then repairs are in order. It seldom pays to patch a roof piecemeal trying to stop small leaks here and there. It is best to do a complete job all at once, otherwise leaks will develop continually, and the roof repair job will always be something to worry about. In repairing the roof, use good materials liberally according to manufacturers' instructions and have the satisfaction of long time trouble-free service.

## *Trains Cockerels to Eat Separately from Hens*

Talk about your trained monkeys! Harlan Palmer, New Haven, Vt., has some cockerels that also show training. Here is the story:

Harlan noticed that some of the males were getting thin. They were the gallant fellows who, when the grain was fed, would call the hens' attention to the grain and go hungry themselves. This gallantry might be proper in the best poultry society, but it was having a bad effect on the physical condition of the males. This effect was showing up in lowered hatchability of eggs set.

There are coops in each pen for broody hens. These coops are very seldom used on the Palmer farm because, by careful selection, broodiness has been practically eliminated. These unused broody coops gave Harlan an idea—why not use them for the males? Therefore, at feeding time, the males would be picked up off the floor and placed in the broody coops for a feeding of grain.

Now here's the interesting part of the story—in just a short time the males were trained to fly into the broody coops for their special feeding of grain. The man doing the feeding would knock a few times with a stick on the feed pail. This was done at the doors of the broody coops. This was sufficient notice for the males to fly to their special pens for their "snack."

—D. C. Henderson, Poultry Tribune, April, 1939.

DUCKS cannot stay afloat long in water that contains as little as one part of dioctyl ester of sodium sulfosuccinic acid in 2,000 parts of water. Even in a solution this weak, the acid acts on the oil in the feathers, causing them to absorb such large amounts of water that the ducks soon sink.

# Designing Farm Buildings for Wind Resistance

By Henry Giese

Iowa State College

*Condensed from Agricultural Engineering*

HIGH and apparently straight winds are quite prevalent and do much damage to farm buildings and other farm property. We find that the difference in construction between the barn and house makes the latter almost immune from demolition by wind, while many of the former blow away. The greater part of wind damage is the result of poor construction methods.

A foundation may be inadequate if it cannot hold a building down as well as up. Winds blowing against a building exert a definite tendency to overturn it. Blowing across the top and away on the leeward side, the normal atmospheric pressure may be considerably reduced on a large portion of the outside. The undiminished atmospheric pressure on the inside upward and leeward may actually lift the building off its foundation, unless it is held by large anchor bolts spaced fairly close together and extending well into the foundation. These bolts will hold the sill in place if large washers are used under the nuts.

It may seem a superfluous caution to suggest that care be taken that nuts are screwed on all the bolts; however, several failures have been observed as the result of such an oversight.

### Vertical Siding Adds Strength

The connection between the sill and the wall above it is also critical. Conventional toenailing is very weak. Additional strength can be obtained if vertical siding is used and well nailed to the sill.

The necessity for wall braces can scarcely be overestimated. In most farm buildings horizontal siding is nailed to vertical studs or vertical siding to horizontal girts. Strength in the conventional wall is limited to the bearing value of wood under nails and the ability of the nails to resist bending as the joint is twisted. Very little pressure is required to bend the nails, crush the wood or split the siding boards, and the structure leans until the siding boards are tight together. If it is a barn with small cracks in the siding resulting from the drying out of the boards after placing, the amount of "lean" may be small.

### Adequate Bracing Necessary

Braces let into the stud faces diagonally, under sheathing, make a horizontally sheathed wall several times stiffer and stronger. So little difference in labor and materials is involved that it seems almost inexcusable to construct a building without adequate bracing.

The improper fastening of plates and rafters to the top of a frame wall appears to be one of the most common structural weaknesses permitting destruction of buildings in a high wind. In the most commonly used construction method, rafters are toe-

American Society of Agricultural Engineers, St. Joseph, Mich.
(Agricultural Engineering, March, 1939)

nailed to a double plate which is nailed to the upper end of the studs.

Nails driven parallel to the grain and toenailing are ineffective methods of fastening and should be avoided wherever possible. While satisfactory on the windward side or where the roof is sufficiently heavy to balance the lifting effect of the wind, it is inadequate if the forces on the leeward side of a building are large enough to pull the roof from the wall, and the remainder of the structure fails for lack of support.

### Making Girders Strong

Girders and trusses are often built up of several comparatively thin members. If splicing is necessary to secure timbers of adequate length, care should be taken to stagger joints or even to add an extra piece at the joints. A joint makes a member thus built up only as strong as the unbroken pieces. If two are spliced at one place, the combined strength of three members is no greater than one alone.

### Stagger Siding Joints

Care should be taken to avoid splicing sheathing boards over one rafter or stud. For a barn 32 feet in width, the carpenter purchased siding in 16-foot lengths. How natural it was to use two 16-foot boards on the first, third, and fifth courses and by cutting one in half, stagger the joints by using an 8, a 16, and an 8 on the alternate courses. Thus on three studs, half of the sheathing boards were spliced and the strength of the joint greatly weakened. It would have been just as easy to have cut an occasional board into 4 and 12-foot lengths, respectively, and to have distributed the splices over seven or more studs instead of three.

Endmatched or "endless" lumber, a recent development, makes possible a still stronger wall. This material is cut in random lengths to avoid defects. Since the ends are tongued and grooved and joints in the sheathing are well supported at the ends as well as the sides, joints are well distributed and usually do not occur over studs or rafters. This also eliminates the splitting which so often results when the board is nailed at the end.

The suggestions given relate primarily to details of construction which will give added strength and rigidity and reduce the probability of demolition from windstorms.

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❝ IF ONE of your fowls happened to lay an egg out in the poultry run during a snowstorm, the peace of the county remains undisturbed. In China, however, all sorts of hullaballoo might ensue, for there an egg on which the snow has melted is traditionally considered to have been laid by a phœnix wedded to a dragon. If it is placed under a sitting hen and a "phchick" is hatched some dreadful devastation of the region, by flood, fire or famine will come about.

—Feathered World, January 13, 1939.

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❝ LIKE the judas goat of the stockyards, a rooster on a farm near Lake Mills, Wis., led 100 hens to their death after they had been driven from a burning poultry house. The rooster sprinted back, and the hens followed faithfully.

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## Egg Areas Shifting

The most interesting observation to be made from the new egg and poultry production estimates of the Bureau of Agricultural Economics, is the fact that the West North-Central States seem to be losing their place as the Nation's chief producer of eggs. These States are: Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas. In 1930, these States produced 28.6 per cent of the Nation's egg supply, while in 1937, they only produced 23.4 per cent. This decline represents about 200,000,000 dozen eggs. To offset this decline in the North West-Central States, the New England, Middle-Atlantic, and East North-Central States have increased their production by approximately the same amount. This means that the Corn Belt States have been losing out, while the heavily populated Eastern States have been gaining. The Mountain and Pacific States have been losing a little of their former position as an egg producing area.

There are probably several factors that have caused the West North-Central States to show a reduction in their production of eggs. One reason is the recent droughts which played havoc with farm flocks, another possible factor is the soil conservation program which has encouraged more acreage in pasture and less production of feed crops.

On the other hand, the South-Atlantic and East South-Central States have begun to increase their production for at least two reasons. One is that conservation programs have encouraged a shift from cotton to feed crops and pastures, and another is the tendency for the South to produce more eggs for home consumption.

The same thing can generally be said for poultry production. The West North-Central States are producing a smaller percentage of the Nation's crop of poultry, while the South and Northeast are expanding. However, a few years of normal feed crop production, with no droughts to force poultry on the markets might change this situation considerably.

—Jos. W. Kinghorne, American Poultry Journal, April, 1939.

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❝ MOST poultry raisers are interested in putting on size in their young stock as quickly and economically as possible. Not so with Bantam breeders. They want to keep their diminutive birds small. So Roy Van Hoesen of Franklinville, N. Y., announces that he has brought out a special mash for retarding growth in Bantams—a mash that "promotes feather finish, health, vigor, egg production with strong shell and high fertility, yet makes slow growth of meat and bone."

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❝ IN a Waikato, New Zealand hospital, Harold Ryder got tired of lying in bed doing nothing. To while away the time, he asked for a fresh egg. Stealthily tucking it under the covers, he acted as second-hand mother or broody hen and in due time hatched a healthy White Leghorn chick. The newspaper account says that it took 25 days. Maybe so, but unless Mr. Ryder's temperature was far below normal, it should have been 21 or 22.

—Poultry Item, April, 1939.

## Sexed Cockerels Offer New Flock Improvement Method

Everyone knows the importance of good vigorous, carefully bred breeding cockerels in any flock improvement plan. Since the individual breeding male has a larger influence on the future profit making qualities of his offspring than does any female, his blood lines are a matter of prime importance.

Practical poultrymen and biologists have for some time realized that there is sometimes grave danger involved in the movement of adult birds from farm to farm. Long shipments in bad weather may throw birds out of condition, or contact with other birds in transit may be a means of spreading infectious diseases.

Now, at last, poultrymen can avoid these dangers. The practice of separating chicks as to sex not only allows the commercial poultryman to secure pullet chicks without the trouble of rearing broilers, but also enables him to secure sexed baby breeding cockerels of the finest breeding to raise for the purpose of improving his flocks. Many leading breeders are now in a position to furnish pedigreed baby cockerels.

The use of this method of introducing superior blood lines eliminates the dangers of transmitting infectious diseases. It allows the growing cockerels to become adapted to the environment in which they will be used and it allows the poultryman to have a hand in selecting the males he will use. It eliminates the work of individually pedigreeing hatching eggs for the purchaser, and last, but not least, it reduces the cost of flock improvement.

I believe that it is a step forward in breeding work.

—H. Lyle Mosher, Poultry Tribune, April, 1939.

## Rooster Tried for Laying Egg

In Europe, to a comparatively late period, lower animals were considered amenable to laws. Domestic animals were tried in the criminal courts, and on conviction, punished with death. Prosecuting of domestic animals was based on Ex. 21: 28—"If an ox gore a man or woman, that they die, then the ox shall be surely stoned." Other Bible references were also quoted. Advocates (amici curiae, friends of the court) were assigned to defend the animals, and the trial was conducted with the strictest formalities.

At Basle, Switzerland, 1474, a cock was tried for having laid an egg. The prosecution "proved" that the cock's eggs were of great value in concocting certain magical preparations; and that in pagan lands, Satan employed witches to hatch such eggs, from which came animals most injurious to the human race and the Christian faith. The defence claimed that the laying of such an egg was an involuntary act, and therefore not punishable by law. If sorcery were charged, no historic record could be adduced that Satan ever made a compact with any of the brute creation.

On the other hand, the prosecution instanced the case of the swine possessed of devils and being punished by rushing to their death. The cock was condemned to death, not as a cock, however, but as a sorcerer or devil in the form of a cock! Together with its egg it was burned at the stake with due solemnity.

—Poultry Item, April, 1939.

# QUESTIONS AND ANSWERS

## Quantity of Feed for Dozen of Eggs

**Question**—How much feed is required to produce a dozen eggs?

**Answer**—The pounds of feed required to produce a dozen eggs depends upon the rate of production and breed of chickens. With a flock of Leghorns that is in 50 per cent production it requires from 4½ to 6½ pounds of feed to produce a dozen eggs. In heavy breeds that are in 50 per cent production it requires from 7½ to 8½ pounds of feed to produce a dozen eggs.

—Noel Bennion, The Eggsaminer.

## Amount of Capital for Poultry Business

**Question** — On the average, how much capital is required to get started in the poultry business?

**Answer**—More capital is required to develop a safe poultry enterprise than the amateur anticipates. Exclusive of land and the home, a first year investment of approximately $2.50 to $3.00 per pullet is required. This expenditure when pro-rated will include cost of brooder, fuel, feed, litter, cost of chicks, mortality losses, poultry house and equipment.

Where cost of land is included with the above expenditures, the investment ranges from $4 to $5 per bird and where the dwelling house is included the total investment in a poultry farm ranges from $10 to $18 per bird.

So many people have the idea that very little capital is required to get started in the poultry business, which no doubt is one cause for many failures.

—Noel Bennion, The Eggsaminer.

## Size of Poultry Unit

**Question** — What is the most economical size for a poultry unit?

**Answer**—For the most economical production, poultry producers should come under one of three classifications:

(1) Commercial flocks of not less than two thousand laying hens.
(2) Side line flocks from four to five hundred.
(3) Subsistence or farm flocks from 25 to 50 hens.

If a poultryman is depending entirely on poultry for his living, he should have at least two thousand laying hens which is a full time job for one man. If poultry is considered one of the enterprises on the farm which contributes to the farm income it should consist of 400 to 500 birds in order to justify proper care of the flock and eggs. Twenty-five to 50 hens are enough for a subsistence or farm flock if they are given proper feed and care. This many birds will produce what chickens and eggs the average farm family will consume with reasonably good care.

—Noel Bennion, The Eggsaminer.

## Blackhead in Chickens

**Question**—Some of my six week old chickens have died. When I open them, some of the livers have gray or yellow spots in them and in others the livers have the appearance of being cooked. What could cause this?

**Answer** (by Dr. C. E. Sawyer)—The condition which you describe may be blackhead. While blackhead or enterohepatitis commonly occurs in turkeys, it often affects chickens, and as in turkeys, it is usually more serious in young stock. The blackhead organism, a tiny animal parasite invisible except under the microscope, gains entrance to the bird's body by way of mouth when eaten with contaminated substances such as soil, feed or water. This organism is also harbored within the egg of the cecal worm. The blackhead organism attacks the blind pouches and liver. The blind pouches may be distended with a solid yellowish cheesy mass, with the walls of the organ thickened. The liver may have yellowish areas, giving a cooked appearance or large spots, which are grey or yellowish and sunken below the surface of the liver. The heart sac is often distended with a pale yellow jelly-like substance.

—Washcoegg, March, 1939.

## Odd Sized Turkey Eggs

**Question**—We are told that egg size is inherited and that we should not use small or excessively large eggs for hatching. This is easy to say, but not so easy to do. A turkey egg is too valuable to throw away or to use for food during the hatching season. Have you any suggestions as to how we could solve this problem in a practical manner without affecting our breeding work?—Mrs. D. I. R., Cal.

**Answer**—Poults from small eggs develop quite satisfactorily into good market birds. The greatest problem in growing market birds comes during the brooding period. Poults hatched from small eggs will be smaller than other poults. The larger poults will run over them and will crowd them away from the feed and water. Many of them will die. Poults that hatch from large eggs will dominate the average sized poults in the same manner.

If your incubator will accommodate odd sized eggs, place all such eggs in separate hatching trays. As the poults hatch, they can be toe punched for identification.

Place all small poults in one lot which will give them a chance to develop. Large ones can also be segregated. After the first couple of weeks, the poults can all be thrown together. The toe punch mark will identify these birds so you will not use them in your breeding flock.

—Turkey World.

## Poultry Diseases Not Transmitted to Humans

**Question**—Is it safe to eat a chicken which died because the other chickens picked out some of the intestines? I also am in doubt about lame chickens that are otherwise healthy looking and have a good appetite.—A. K., N.Y.

**Answer**—There is no reason why the chickens described in your recent letter should not be eaten. Birds that have been picked by other birds bleed to death internally and are perfectly satisfactory for food.

The laying birds are probably affected with range paralysis, a disease of the nervous system, and are equally suitable for food purposes.

There is no disease of poultry that can be transmitted to human beings and furthermore, thorough cooking of the bird would eliminate any danger if any existed.

—Poultry Item.

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# VIEWS OF THE EDITORS

## Competition

Jay Odell of the Seymour Packing Company made a study of the food advertisements in the November and December issues of two national magazines reaching housewives, The Ladies' Home Journal and the Woman's Home Companion. He found that in these two issues, Breakfast Foods were advertised in space that cost $156,875. Foods that compete for a place on the lunch and dinner table were in space that cost $503,525. Thus a total of $660,000 (2-3 million) was being spent in two publications in only two months to advertise foods that have a tendency, at least, to push eggs and poultry meat off the consumer's table. There is your competition!

Mr. Odell, as a member of the Consumer Education Committee of the World's Poultry Congress, assures us that this committee will have something doing every minute of the week at Cleveland next July.

According to Mr. Odell, "If we are successful in keeping eggs on the breakfast table instead of cereals and juices, it will be the direct result of the work being started by the World's Poultry Congress." Present plans are that the Consumer Campaign will start to function immediately after the World's Poultry Congress.

—Poultry Item, March, 1939.

## Schooling Necessary

As in past years we again offer this advice to those contemplating entering the poultry field—"Don't go into the poultry business — Grow into it." This is not alone the advice of the New England Homestead, but we feel sure would be the advice of every man or woman who has made a success in this field of endeavor.

Failures in the poultry industry have been many, largely due to lack of knowledge of the problems of the industry as a whole. There is no one phase of agricultural husbandry that requires so much general knowledge as that of poultry. If building houses and feeding of flocks were the only prerequisites, most any one would succeed, but the care, feed and management, and particularly knowledge of poultry diseases and control are factors necessary to success and factors which can be learned only by experience. Many successful poultrymen owe their success to the fact that they first learned the fundamentals by actual work on a good poultry farm. Look before you leap—and if you decide to embark in the poultry business as a vocation, profit well by the experience of others. Don't go into the poultry industry — Grow into it. Failure to follow this advice may prove costly in the long run.

—New England Homestead, Feb. 25, 1939.

## Forcing Nature

Among specialists, there is a belief we are somehow quite a way from an ideal in production methods. Out-of-season production of anything that grows can be forced too far. The main crop should, for the health of the birds and to keep costs down, be adapted so far as possible to Nature's seasons. With eggs this would still leave room for a long season of production if more attention were given to good housing and to equalizing climate for the birds rather than to forcing them into extreme performance against odds, turning their seasons of mating topsy-turvey, etc. We are dealing with organic life which is not so easily reduced to chemical formulas nor to mechanical regimes.

—Paul Mandeville in U. S. Egg and Poultry Magazine, April, 1939.

## Trade Restrictions Exposed!

Slogans like, "You can't buy better chicks than those hatched in this state," or regulations providing that chicks imported must meet higher standards of health and quality than those produced within the state by the state's own citizens, or laws which place the egg quality emphasis on age rather than internal quality and thereby making distance a sales handicap, are a few of the trade barriers in the poultry industry which contributed to a release from the U.S. Department of Agriculture, entitled, "Interstate Trade Barriers Subject of New Publication."

The Bureau of Agricultural Economics, in making the special report to the secretary, declared that "these interstate trade barriers are causing incalculable economic loss to the nation."

Practically every state, it is shown in the report, has placed regulations and restrictions upon interstate trade in foods and other commodities. Every farm product is affected. The regulations and restrictions include discriminatory inspection fees, licenses and taxes; conflicting food grading, labeling and packaging laws; and a bewildering maze of quarantines, embargoes and other impositions.

Secretary Wallace says in a foreword, "It was thought that the constitution insured free trade between the states. Today, we cannot say that we have free trade between the states. The heaviest burden for remedial action obviously falls upon the states, but there may well be a number of things the Federal Government can do. Together, I hope we can map a continuous, vigorous, intelligent program of action to the end that state lines may again become broad highways of commerce, serving the general welfare."

We hope so, too. These regulations have gone about the limit in a country that boasts of its democratic freedom.

—O. A. Hanke, Poultry Tribune, April, 1939.

## Egg Study Is Disturbing

That consumers buy eggs and poultry quite judiciously in relation to the income available for food is shown in a study just released by the U.S.D.A. It is based on an analysis of 4,000 diets of employed wage earners and low-salaried clerical workers in 43 industrial center cities in eight different parts of the country.

The authors of the analysis are Dr. Hazel K. Stiebeling and Esther F. Phipard, Federal Bureau of Home Economics, who made the analysis as a Works Progress Administration project, using food records collected by the U.S. Bureau of Labor Statistics from 1934 to 1937.

The authors observed,

"When families could afford only $1.25 to $1.87 a person per week for food, which was the case for more than one-third of the southern Negro families and from one-fourth to one-tenth of White families in all regions, they bought mostly food that 'sticks to the ribs.' When the food budget rose to $3.75 to $4.37 a person a week, they purchased nearly twice as much milk, and from two to three times as much butter, eggs, green and yellow vegetables, meat and poultry, or fish."

As a whole, this survey substantiates the contention that larger egg and poultry consumption is intimately related to a higher level of economic income for a larger percentage of the nation's population. It would appear that both eggs and poultry are being given all the consideration they deserve in the making of the average diet.

However, it may be that the poultry industry is being patronized too liberally. The authors of the bulletin entitled, "Diets of Families of Employed Wage Earners and Clerical Workers in Cities," make this observation.

"Eggs and meat are useful foods of high nutritious content, but as a class they tend to be expensive sources of nutrients."

On another page the authors observe, "Among some groups sugars rank third as a source of energy—for others, especially at the higher levels of expenditure, eggs, meat, poultry and fish were third in importance. These food choices tend to crowd out the protective foods–fruits, vegetables and dairy products."

Other authors have insisted that eggs rightfully deserve to be listed as protective foods.

These authors go on to say, "Compared with Sherman's suggestion for an economical application of our newer knowledge of food values, the allocation of money for different types of food is out of line. He suggests that as much be spent for milk and cheese, and also for vegetables and fruits as for meat, poultry, and fish. In contrast, the White families included in this study spent from one-fourth to one-third of their food money for eggs, lean meat, poultry, and fish; from one-fifth to one-fourth for vegetables and fruits, but only one-eighth to one-sixth for milk and cheese. The Negro families spent almost one-third for eggs, meat, poultry, and fish, about one-sixth for vegetables and fruits, and only 6 per cent for milk.

"Average diets included fewer eggs, from one-half to two-thirds as much milk and less than two-thirds as much of vegetables and fruits as did diets graded good. But even these good diets fell short of the allowances of these protective foods believed by many authorities to be optimal. Modification of present-day diets so as to improve their nutritive qualities without adding much to the outlay for food is chiefly a matter of putting considerably more emphasis upon leafy and green-colored vegetables and upon milk. Many of the inexpensive varieties and forms of these foods yield excellent returns in nutritive value for their cost."

Watch out poultrymen! The poultry industry has been talking about increasing egg and poultry consumption. If studies of this character receive much popular publicity, we may be lucky to maintain the rate of consumption we have.

—O. A. Hanke, Poultry Tribune, April, 1939.

## Selling Surplus

When it comes to a choice between several "cockeyed" plans, the latest one out of Washington seems to have more than usual merit.

Farming and its problem of unequal prices compared with industry, is still the Number 1 problem in Washington. Now, instead of buying up surplus foods and giving them to people on relief, Secretary Wallace proposes to have this food distributed thru the usual store channels, but sold at a low price so that people with low buying power can buy.

A news item recently reports that orange-colored stamps will be placed in the hands of the relief people and they will exchange these stamps at the stores for food. These stamps would be distributed with relief checks in proportion to their relief money. In other words, the government would subsidize the consumer, rather than the farmer, so that he can buy in the usual way and show a small profit to the distributing agencies.

This may have the effect of bearing down prices of some commodities. On the other hand, we believe that it is a decided improvement over distributing food by the government direct, when they are not organized to do it, and in competition with private industry. It should keep more people employed in regular channels of business and it should not interfere quite so much with the normal habits of consumption.

However, in our poultry industry we believe most people are more interested in building up demand for our products rather than simply seeing them disappear into consumption with no real demand being created. If the government wants to help us, they will set up a system of scientific research into uses of our products—much of which has already been done—but which will be followed by a carefully planned dissemination of this information where it will do the most good. This would include doctors, teachers, housewives, home economics staffs and dietitians, to mention only a few. It might also develop exhibits for its agricultural displays at World's Fairs and other places where large groups of people congregate. This would be real farm relief for poultry.

To repeat: We want stronger demand for our products — not simply consumption. At best, this latest experiment to get rid of surplus is but a substitute for the real thing—normal Demand based on ability to buy. We are still treating effects rather than causes. This latest scheme will probably make relief more popular than ever.

—Poultry Item, April, 1939.

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PRIMITIVE methods of retailing poultry still exists in Natal, S. Africa. Zulu women bring the birds into the towns in huge baskets which they carry upon their heads. Each basket holds some 10 to 15 live fowls. Bargaining is the most important part of the business.

—Poultry World, London, Mar. 24, 1939.

F. W. WOOLWORTH Company's store at 22 North State Street, Chicago, said to be the largest variety store in the world and to operate the largest volume restaurant in the Middle West, devoted a week in February to a special turkey dinner. Six thousand pounds of turkeys were required to supply the demand during that week. During the course of the year, approximately 200,000 pounds of poultry meat are served in this store. Poultry in any form, according to the manager, responds better to specialization than almost any other food item served at this restaurant.

# POULTRY STATISTICS

## Hens on Farms—Rate of Lay

Number of Hens Per Flock, and of Eggs Laid Per Hen and Per Flock, First Day of Month

| Geographic Division | Layers per flock | | | Eggs per 100 layers | | | Eggs per flock | | |
|---|---|---|---|---|---|---|---|---|---|
| | Jan. 1 | Feb. 1 | Mar. 1 | Feb. 1 | Mar. 1 | Aggregate Jan.-Mar. | Feb. 1 | Mar. 1 | Aggregate Jan.-Mar. |
| North Atl. | | | | | | | | | |
| 1928-37 (Av.) | 96.9 | 94.9 | 92.8 | 31.8 | 40.6 | 97 | 30.0 | 37.7 | 91 |
| 1938 | 96.7 | 95.1 | 93.8 | 38.1 | 47.9 | 118 | 36.2 | 44.7 | 112 |
| 1939 | 98.4 | 96.5 | 95.1 | 38.0 | 48.2 | 119 | 36.4 | 45.8 | 114 |
| North Cent. | | | | | | | | | |
| 1928-37 (Av.) | 115.7 | 114.9 | 111.2 | 22.1 | 34.2 | 72 | 25.9 | 38.4 | 83 |
| 1938 | 102.4 | 103.5 | 99.8 | 30.0 | 38.7 | 89 | 31.4 | 39.2 | 92 |
| 1939 | 110.4 | 110.2 | 106.9 | 30.0 | 37.6 | 91 | 33.5 | 40.7 | 100 |
| South Atl. | | | | | | | | | |
| 1928-37 (Av.) | 60.1 | 59.0 | 57.3 | 28.8 | 41.0 | 90 | 17.0 | 23.5 | 52 |
| 1938 | 55.8 | 54.6 | 54.3 | 32.2 | 48.6 | 106 | 18.2 | 26.4 | 59 |
| 1939 | 59.9 | 57.7 | 56.4 | 32.7 | 47.5 | 106 | 19.1 | 26.5 | 61 |
| South Cent. | | | | | | | | | |
| 1928-37 (Av.) | 66.8 | 66.3 | 63.6 | 25.3 | 40.6 | 83 | 16.8 | 25.7 | 54 |
| 1938 | 59.3 | 60.3 | 58.5 | 33.3 | 44.9 | 98 | 20.0 | 26.4 | 59 |
| 1939 | 63.6 | 63.4 | 61.6 | 30.2 | 43.7 | 96 | 19.1 | 27.0 | 60 |
| Western | | | | | | | | | |
| 1928-37 (Av.) | 74.0 | 73.4 | 71.5 | 29.7 | 44.5 | 97 | 20.9 | 30.8 | 68 |
| 1938 | 71.1 | 71.0 | 69.5 | 35.4 | 43.5 | 105 | 25.0 | 29.9 | 73 |
| 1939 | 72.6 | 71.1 | 69.0 | 37.5 | 44.6 | 109 | 26.0 | 29.6 | 75 |
| United States | | | | | | | | | |
| 1928-37 (Av.) | 86.0 | 85.1 | 82.3 | 25.0 | 37.7 | 81 | 21.4 | 31.1 | 68 |
| 1938 | 77.6 | 78.3 | 75.8 | 32.2 | 42.2 | 97 | 25.3 | 32.5 | 76 |
| 1939 | 82.8 | 82.0 | 79.8 | 31.9 | 41.4 | 98 | 26.0 | 33.4 | 80 |

February developments were encouraging to poultrymen, judging from March 1 returns from crop reporters. With better prices for eggs during February and a continuing high rate of egg production per hen, cullings from farm laying flocks were lighter than in February last year and less than usual for that month. This lighter culling offset in part the loss of layers from the heavier cullings that accompanied the low egg prices of January. As a result, the average number of layers in farm flocks on March 1 was 5.3 per cent higher than on March 1, 1938, while on February 1 they were only 4.7 per cent greater than a year earlier. Producers are thus showing a slightly stronger tendency to retain their layers. Compared with the 10-year (1928-37) average number of layers on March 1, numbers of layers were still 3 per cent low; compared with the 5-years (1927-31) of maximum March numbers of layers, present numbers are about 8 per cent low.

Numbers of layers on farms, considered alone thus appear to be low in relation to average numbers during the previous decade, particularly in relation to the first five years of that period. They appear on their face to be particularly low if we bear in mind the population increase of about 6 per cent since 1929. Offsetting this smaller number of hens, however, is the high rate of annual egg production per hen, which during the past two years averaged about 9 per cent above the 10-year average.

The average number of eggs laid per hundred hens in farm flocks on March 1 failed, as it did on February 1, to equal the high seasonal rate per hen shown last year, being about 2 per cent less on March 1. The aggregate of the January 1, February 1, and March 1 rate of production per hen this year, however, was the highest except for last year in the 15-year record. For dates the rate exceeded the 10-year (1928-37) average by 21 per cent, while for March 1 it was 10 per cent above average. Even though the number of hens was 3 per cent below the level of numbers during the decade 1928-37 and few storage eggs were available, the supply of eggs this winter remained abundant.

Egg layings per hen were 1 to 3 per cent higher than last year in the commercial egg production sections of the North Atlantic and Far Western States, but 2 to 3 per cent lower in other regions. Compared with the 10-year average March 1 production per hen, the North Atlantic area shows a gain of 19 per cent and the East North Central and South Atlantic of 15 and 16 per cent respectively. The West North Central and South Central Divisions show gains of 7 and 8 per cent, and the Far Western practically no change from the 10-year average.

The total indicated production of eggs on March 1 was about 3 per cent greater than on that date last year, the increase in numbers of hens being greater than the decrease in rate of production.

—Comment from Monthly Egg and Poultry Markets Review.

## Egg Prices

### 1939 Egg Prices at New York City

| Kind | Mar. 3 | Mar. 10 | Mar. 17 | Mar. 24 | Mar. 31 | Mar. 31, '38 |
|---|---|---|---|---|---|---|
| Mixed Color Firsts | 17½-17¾ | 17¾ | 17¼-17¾ | 17 | 17 | 17¼-18¼ |
| Nearby and Midwestern White Premium Marks | 21 -22 | 22 -23 | 23 -24 | 22½-23½ | 22 -23 | 21¼-23 |
| Nearby and Midwestern White Specials | 18¾-19 | 21 | 21¾-22 | 21¼-21½ | 21 | 20½-21 |
| Pacific Coast Specials | 27¼-27¾ | 27¼-27¾ | 27¼-27¾ | 27¼-27¾ | 27¼-27¾ | 25½-26 |
| Nearby and Western Brown Exchange Specials | 19 | 20 | 20½ | 19 -19½ | 19 | 21 -21½ |

Egg markets during March are reported by the Bureau of Agricultural Economics to have been somewhat irregular though mostly steady. Fractional price changes up and down have occurred, but as the month draws to a close prices are slightly higher than in late February.

### Farm Prices of Eggs per Dozen

(Figures given in cents)

| Year | Jan. 15 | Feb. 15 | Mar. 15 | Apr. 15 | May 15 | June 15 | Aug. 15 | Oct. 15 | Dec. 15 |
|---|---|---|---|---|---|---|---|---|---|
| Average 1925-34 | 31.0 | 24.0 | 19.3 | 18.7 | 18.7 | 18.6 | 22.0 | 30.0 | 35.7 |
| 1937 | 23.1 | 20.1 | 19.9 | 20.1 | 17.9 | 17.6 | 20.4 | 25.2 | 26.0 |
| 1938 | 21.6 | 16.4 | 16.2 | 15.9 | 17.6 | 18.2 | 21.0 | 27.1 | 27.9 |
| 1939 | 18.8 | 16.7 | 16.0 | | | | | | |

Farm egg prices in relation to feed prices on February 15 were more favorable to producers than in either the previous month or the previous year. United States farm egg prices stood at 16.7 cents per dozen compared with 16.4 cents on March 1 last year, while feed prices were 97.8 cents per hundred pounds compared with 114.2 cents a year earlier. While February egg prices were low absolutely, they were not unfavorable to producers considering the large number laid per hen and the low cost of feed.

## Poultry Meat Prices

### Farm Prices of Chickens per Pound

(Figures given in cents)

| Year | Jan. 15 | Feb. 15 | Mar. 15 | Apr. 15 | May 15 | June 15 | Aug. 15 | Oct. 15 | Dec. 15 |
|---|---|---|---|---|---|---|---|---|---|
| Average 1925-34 | 16.8 | 17.2 | 17.5 | 18.2 | 18.3 | 18.0 | 17.3 | 16.8 | 15.8 |
| 1937 | 13.4 | 13.6 | 14.4 | 15.2 | 14.8 | 14.8 | 16.8 | 17.6 | 16.4 |
| 1938 | 16.7 | 16.0 | 15.9 | 16.2 | 16.1 | 15.7 | 14.2 | 13.6 | 13.6 |
| 1939 | 14.0 | 14.2 | 14.3 | | | | | | |

Farm chicken prices on February 15 of 14.2 cents per pound were also low absolutely, but they have only been exceeded twice since 1931. Considering the low feed prices, they were distinctly favorable to poultrymen.

Prices of turkeys on February 15 averaged 17.5 cents per pound compared with 17.7 cents a year earlier. They were lower than in 1936 and 1938 but higher than in any other February since 1932. Considering their relation to feed prices alone, this year's February price was the most favorable since 1933 when turkeys sold at 10 cents per pound and feed at 48 cents per hundred weight.

—Comment from Poultry and Egg Production Report.

## Receipts of Eggs and Poultry

### Receipts of Eggs at Eastern Egg Auctions

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| March 4 | 27 | 32,238 | +3.23 | +22.86 |
| March 11 | 27 | 32,769 | −0.49 | +25.71 |
| March 18 | 26 | 31,581 | +0.38 | +29.03 |
| March 25 | 25 | 29,089 | +0.27 | +22.70 |

### Receipts of Eggs at Pacific Coast Primary Markets

| Week Ending | No. of Plants | Cases of Eggs 1939 | Cases of Eggs 1938 | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| March 4 | 64 | 71,957 | 76,561 | +15.93 | − 6.01 |
| March 11 | 63 | 70,242 | 82,733 | − 2.18 | −15.10 |
| March 18 | 64 | 69,303 | 82,003 | − 1.65 | −15.49 |
| March 25 | 64 | 72,919 | 82,241 | + 5.23 | −11.33 |

### Receipts of Eggs and Poultry at Central Western Primary Markets

| Week Ending | Cases of Eggs 1939 | 1938 | % Chg. | Pounds of Poultry (000 omitted) 1939 | 1938 | % Chg. | Pounds of Young Stock (000 omitted) 1939 | 1938 | % Chg. | Pounds of Fowl (000 omitted) 1939 | 1938 | % Chg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mar. 4 | 117,476 | 112,635 | + 4.30 | 1,382 | 1,330 | + 3.90 | Discontinued until quantities available are larger. | | | 1,221 | 1,109 | +10.14 |
| Mar. 11 | 159,799 | 133,075 | +20.08 | 1,728 | 1,577 | + 9.55 | | | | 1,439 | 1,337 | + 7.55 |
| Mar. 18 | 183,201 | 170,089 | + 7.71 | 1,709 | 1,331 | +28.44 | | | | 1,436 | 1,161 | +23.72 |
| Mar. 25 | 236,793 | 234,587 | + .94 | 1,663 | 1,168 | +42.37 | | | | 1,460 | 1,024 | +42.55 |

### Receipts of Eggs (Cases) at 4 Markets*

| Geographic Sections | February 1939 | 1938 | % change | Jan. to Feb., Inc. 1939 | 1938 | % change |
|---|---|---|---|---|---|---|
| New England | 34,323 | 25,552 | + 34.33 | 75,927 | 57,264 | + 32.59 |
| Middle Atlantic | 165,810 | 149,295 | + 11.06 | 330,963 | 295,036 | + 12.18 |
| South Atlantic | 22,282 | 22,391 | – 0.49 | 41,304 | 39,849 | + 3.65 |
| East North Central | 172,545 | 151,209 | + 14.11 | 391,732 | 312,777 | + 25.24 |
| West North Central | 484,015 | 415,666 | + 16.44 | 932,561 | 767,925 | + 21.44 |
| South Central | 3,227 | 15,220 | – 78.80 | 7,910 | 23,828 | – 66.80 |
| Mountain | 18,435 | 64,782 | – 71.54 | 56,735 | 111,632 | – 49.18 |
| Pacific | 19,313 | 53,981 | – 64.22 | 55,487 | 149,166 | – 62.80 |
| Miscellaneous | 382 | 421 | – 9.26 | 677 | 811 | – 16.52 |
| TOTAL | 920,332 | 898,517 | + 2.43 | 1,893,296 | 1,758,288 | + 7.68 |

### Receipts of Dressed Poultry (Pounds) at 4 Markets*

| Geographic Sections | February 1939 | 1938 | % change | Jan. to Feb., Inc. 1939 | 1938 | % change |
|---|---|---|---|---|---|---|
| New England | 333,502 | 551,970 | – 39.58 | 604,183 | 710,894 | – 15.01 |
| Middle Atlantic | 774,679 | 431,786 | + 79.41 | 1,458,742 | 834,090 | + 74.89 |
| South Atlantic | 1,163,611 | 509,162 | +128.53 | 2,084,878 | 921,191 | +126.32 |
| East North Central | 2,804,776 | 1,322,141 | +112.14 | 6,455,932 | 3,375,897 | + 91.24 |
| West North Central | 7,740,056 | 5,809,038 | + 33.24 | 20,385,225 | 15,043,385 | + 35.51 |
| South Central | 1,934,208 | 2,478,560 | – 21.96 | 4,213,905 | 5,059,011 | – 16.71 |
| Mountain | 486,221 | 275,738 | + 76.33 | 1,333,593 | 1,080,669 | + 23.40 |
| Pacific | 490,964 | 1,582,315 | – 68.97 | 1,181,279 | 2,904,394 | – 59.33 |
| Miscellaneous | – | – | – | – | – | – |
| TOTAL | 15,728,017 | 12,960,710 | + 21.35 | 37,717,737 | 29,929,531 | + 26.02 |

* New York, Chicago, Philadelphia and Boston.

Marketings of eggs at Central West packing plants located in the area from which the largest quantities of eggs are received at Eastern terminal markets are still showing increases over the corresponding periods of a year earlier, which has been the case since the early fall of 1938. During the first 3 weeks of March, the increases were 4.3 per cent, 20.0 per cent, and 7.7 per cent, respectively. Terminal market receipts thus far in March, however, have not as yet fully reflected this condition, although they are greater than in 1938. February receipts at terminal markets exceeded the same month of last year by 2.4 per cent, with the North Central States showing increases of 14 to 16 per cent. While the actual quantities of eggs arriving at eastern terminal markets from nearby States are not so large as from the Central West, the percentage increases are more or less significant, with the New England States up 34.0 per cent and Middle Atlantic States 11.0 per cent over last year. Receipts from the Pacific Coast are very much lighter than in 1938, the February reduction being 64.0 per cent, which is substantially the calendar year reduction up to March 1. Country packing plant receipts on the West Coast are in sharp contrast to those of the Central West, with continued decreases under a year earlier recorded each week. This same relationship existed throughout all of 1938. Some Middle Western eggs have been moving to the Pacific Coast.

The market on live poultry has been somewhat spotty this month, but in general the tone has been steady, with some firmness evident at times. Heavy fowl have not moved as readily as the smaller weights. Some interest in fat fowl was noted toward the close of the month in connection with trading for the forthcoming Jewish holidays. Broilers of best quality have been in a better position than a month ago.

Marketings of poultry at Central Western packing plants, showed seasonal increases during the first half of March, and exceeded last year's receipts at this season by about 20 per cent. Over 80 per cent of this month's receipts were classed as fowl.

Receipts of dressed poultry at terminal markets in February were 21 per cent greater than in February 1938, and since January 1 to date are close to 25 per cent greater than the corresponding period of last year. Receipts from the East North Central and South Atlantic States this year are double those of a year ago.

—Comment from Poultry and Egg Production Report.

## Egg-Feed Ratios

### New York Egg-Feed Ratio

| Week Ending | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1939 | 1938 | 1937 | Avg. Egg Price per Doz. (Dollars) 1939 | 1938 | 1937 | Avg. Feed Cost per 100 lbs. (Dollars) 1939 | 1938 | 1937 |
|---|---|---|---|---|---|---|---|---|---|
| March 2 | 9.0 | 9.8 | 10.7 | .185 | .200 | .236 | 1.66 | 1.82 | 2.53 |
| March 9 | 8.5 | 8.9 | 10.7 | .196 | .200 | .238 | 1.67 | 1.78 | 2.56 |
| March 16 | 8.3 | 8.9 | 10.2 | .201 | .202 | .250 | 1.66 | 1.79 | 2.55 |
| March 23 | 8.3 | 8.4 | 9.9 | .203 | .214 | .258 | 1.68 | 1.79 | 2.57 |
| March 30 | 8.8 | 8.6 | 10.6 | .191 | .206 | .254 | 1.68 | 1.77 | 2.68 |

### Chicago Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration 1939 | 1938 | 10-Yr. Av. 1929-38 | Price of Fresh Graded Firsts (Dollars) 1939 | 1938 | Cost of Ration per 100 lbs. (Dollars) 1939 | 1938 |
|---|---|---|---|---|---|---|---|
| March 4 | 6.38 | 6.89 | 6.20 | .160 | .170 | 1.023 | 1.177 |
| March 11 | 6.19 | 6.54 | 6.37 | .165 | .176 | 1.026 | 1.155 |
| March 18 | 6.05 | 6.41 | 6.38 | .167 | .178 | 1.014 | 1.147 |
| March 25 | 6.28 | 6.56 | 6.43 | .162 | .177 | 1.021 | 1.162 |

## Eggs in Storage

### Storage Holdings of Eggs

| Kind | March 1 5-Year Avg. 1934-38 | March 1 1938 | February 1 1939 | March 1 1939 | % Change Mar. '38-Mar. '39 |
|---|---|---|---|---|---|
| | | (Thousands) | | | |
| Shell Eggs (cases) | 148 | 281 | 136 | 164 | –41.6 |
| Frozen Eggs (lbs.) | 49,621 | 88,754 | 50,345 | 44,478 | –49.8 |
| Frozen Case Equivalent (cases)* | 1,418 | 2,536 | 1,438 | 1,271 | –49.8 |
| Total (cases) | 1,566 | 2,817 | 1,574 | 1,435 | –49.0 |

* Frozen eggs are converted on the basis of 35 lbs. to the case.

Noted as one of the month's developments is a fairly active into-storage movement. This is indicated in the weekly reports which cover 35 cities. Shell egg holdings in those markets on March 25 were 489,000 cases, as compared with approximately 119,000 cases in the same markets on March 1. This increase of some 370,000 cases, however, is less than the increase which occurred during the corresponding period of 1938, and furthermore, total stocks are smaller than those of last year by almost 200,000 cases. It appears that most dealers are unwilling to store freely this early in the season at the prices which have prevailed, for in line with the outlook statement of last fall, more hens and larger production of eggs are expected this year than last. A month from now, storing values will have been crystallized.

## Poultry in Storage

### Storage Holdings of Frozen Poultry

| Kind | March 1 5-Year Avg. 1934-38 | March 1 1938 | February 1 1939 | March 1 1939 | % Change Mar. '38-Mar. '39 |
|---|---|---|---|---|---|
| | | (Thousand Pounds) | | | |
| Broilers | 12,523 | 7,862 | 10,804 | 9,300 | +18.4 |
| Fryers | 11,244 | 8,625 | 13,696 | 11,688 | +35.5 |
| Roasters | 26,866 | 20,161 | 31,273 | 26,743 | +32.6 |
| Fowls | 17,193 | 20,810 | 20,883 | 18,379 | –11.6 |
| Turkeys | 24,715 | 24,561 | 28,264 | 26,957 | + 9.7 |
| Ducks | 2,018 | 2,717 | 4,664 | 2,989 | + 7.8 |
| Miscellaneous | 15,980 | 15,757 | 23,947 | 20,244 | +28.4 |
| Total | 110,539 | 100,493 | 133,531 | 116,300 | +15.7 |

Stocks of frozen poultry on February 1 were 116,300,000 pounds, an increase of 16 million pounds above a year earlier, and about 6 million above the February 1 five-year average. The out-of-storage movement during March has been more rapid than that of February, and March 25 stocks in the 35 cities were 76 million pounds, compared with 63 million pounds a year earlier.

—Comment from Monthly Egg and Poultry Markets Review.

## Hatchery Operations

### Eggs Set, Chicks Hatched, and Chicks Booked by Commercial Hatcheries

| Geographic Section | No. of plants | Eggs set During February 1939 | Eggs set During February 1938 | Eggs set During February % chg. | Salable Chicks Hatched During February 1939 | Salable Chicks Hatched During February 1938 | Salable Chicks Hatched During February % chg. | Chicks Booked Mar. 1 for March or later delivery: No. of plants | Chicks Booked 1939 | Chicks Booked 1938 | Chicks Booked % chg. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Thousands | | | Thousands | | | | Thousands | | |
| N. Eng. | 21 | 2,226 | 2,070 | + 8 | 1,330 | 1,192 | +12 | 17 | 1,966 | 1,748 | +12 |
| Mid. Atl. | 44 | 2,224 | 2,074 | + 7 | 903 | 736 | +23 | 44 | 1,842 | 1,676 | +10 |
| S. Atl. | 38 | 1,672 | 1,371 | +22 | 767 | 574 | +34 | 28 | 1,326 | 1,133 | +17 |
| E. N. Cent. | 158 | 6,020 | 5,202 | +16 | 2,087 | 1,643 | +27 | 140 | 4,445 | 3,779 | +18 |
| W. N. Cent. | 165 | 7,088 | 5,565 | +27 | 2,341 | 1,618 | +45 | 164 | 5,807 | 4,658 | +25 |
| S. Cent. | 39 | 2,145 | 2,027 | + 6 | 1,023 | 871 | +17 | 31 | 753 | 519 | +45 |
| Mountain | 18 | 553 | 529 | + 5 | 212 | 158 | +34 | 15 | 331 | 221 | +50 |
| Pacific | 52 | 5,522 | 4,489 | +23 | 2,733 | 1,949 | +40 | 44 | 6,083 | 4,448 | +37 |
| U. S. | 535 | 27,450 | 23,327 | +18 | 11,396 | 8,741 | +30 | 483 | 22,553 | 18,182 | +24 |

## Egg and Poultry Exports and Imports

### Exports of Eggs and Poultry

| Commodity | | February 1939 | February 1938 | Jan. to Feb., Inc. 1939 | Jan. to Feb., Inc. 1938 |
|---|---|---|---|---|---|
| Eggs in shell | (doz.) | 241,333 | 188,481 | 432,221 | 217,058 |
| Eggs and yolks, frozen, dried, or canned | (lbs.) | Notavailable | Notavailable | Notavailable | Notavailable |
| Live Poultry | (lbs.) | 8,660 | 6,230 | 16,543 | 11,747 |
| Dressed Poultry | (lbs.) | 168,899 | 112,586 | 293,118 | 188,866 |

### Imports of Eggs and Poultry

| Commodity | | February 1939 | February 1938 | Jan. to Feb., Inc. 1939 | Jan. to Feb., Inc. 1938 |
|---|---|---|---|---|---|
| Eggs in shell | (doz.) | 24,176 | 10,136 | 73,799 | 38,671 |
| Whole egg, dried | (lbs.) | 11,000 | 82,500 | 17,000 | 96,650 |
| Whole eggs, frozen | (lbs.) | 420 | 40 | 420 | 40 |
| Yolks, dried | (lbs.) | 7,400 | 1,050 | 36,175 | 159,750 |
| Yolks, frozen | (lbs.) | 11,190 | 74,950 | 11,190 | 166,840 |
| Egg Albumen, dried | (lbs.) | 56,200 | 62,387 | 128,992 | 181,774 |
| Egg Albumen, frozen | (lbs.) | 0 | 0 | 0 | 30 |
| Live Poultry | (lbs.) | 43,628 | 129,722 | 117,538 | 396,558 |
| Dressed Poultry | (lbs.) | 33,824 | 47,303 | 48,585 | 90,827 |
| Poultry, Prepared | (lbs.) | 117,219 | 71,386 | 234,640 | 197,982 |

## Poultry Canning Operations

### Poultry Canning Operations During January, 1939

| Commodity | Quantities reported to date for Feb. 1939 | Quantities reported for Jan. 1939 | Same Firm Comparisons: Feb. 1939 | Same Firm Comparisons: Feb. 1938 | % change in 1939 |
|---|---|---|---|---|---|
| | Pounds | Pounds | Pounds | | |
| Dressed poultry canned or used in canning | 3,328,976 | 3,848,467 | 3,328,976 | 2,965,846 | +12 |
| Number of firms reporting | 20 | 21 | 20 | | |

## Egg Breaking Operations

### Egg Breaking Operations During February 1939

| Commodity | | Quantities reported to date for Feb. 1939 | Same firm comparisons: Feb. 1939 | Same firm comparisons: Feb. 1938 | % change in 1939 |
|---|---|---|---|---|---|
| | | Pounds | Pounds | | |
| Whole eggs (nothing added) | | 1,633,821 | 1,633,821 | 918,139 | + 78 |
| Mixed eggs (plain) | | 309,270 | 309,270 | 293,232 | + 5 |
| Mixed eggs (emulsions, also with sugar, salt, etc.) | | 507,298 | 507,298 | 63,847 | + 695 |
| Egg whites (all descriptions) | | 2,353,843 | 2,353,843 | 1,454,567 | + 62 |
| Egg Yolks Packed | Without salt, sugar, etc. | 987,101 | 987,101 | 1,115,060 | – 11 |
| | With sugar | 763,624 | 763,624 | 44,940 | +1599 |
| | With salt | 204,170 | 204,170 | 6,440 | +3070 |
| | All yolk emulsions, including glycerine | 25,980 | 25,980 | 45,780 | – 43 |
| Total—pounds | | 6,785,107 | 6,785,107 | 3,942,005 | + 72 |
| Total—case egg equivalent | | 193,860 | 193,860 | 112,629 | |
| Number of firms reporting* | | 54 | 54 | | |

* Firms, not plants. Some firms operate more than one plant.

# RESULTS OF LAYING TESTS

Kauder's Pedigreed Leghorns at Storrs sailed right into first place among all test pens during February and on March 1 enjoyed a 34-point lead over Mettler's Reds at Hunterdon, N. J., which advanced to second place. Nelson's Leghorns swept into third position. J. J. Warren's Reds at Passaic, N. J., dropped to fourth place after leading all pens since the first of the laying test year, but they still are very much in the fight. Foreman Poultry Farm's White Leghorns at Texas hopped from eighth place to fifth place among all pens, leading Leader's Leghorns at Pennsylvania by less than a point. Vans R. Otey's Reds at Florida have a 3-point advantage over Ford's Riverbank Farm's Reds at Maine. Kauder's highest pen at Georgia and Woodlawn Farm's Leghorns at Texas occupy ninth and tenth positions, one-tenth of a point apart.

Ford's Riverbank Farm again had the top-notch pen for the month, running up a total of 345 points during the 28 days of February. A. E. Guinn's White Leghorn at Georgia still shows her tail feathers to all other birds.

A glance at the tables for individual breeds shows how many breeders place two, three and even four pens among the top 20 in their respective classes. Among White Leghorns, Kauder has three pens, Woodlawn Farm two, W. A. Seidel two, Erath Egg Farm two, Booth Farms and Hatchery two. In Rhode Island Reds, J. J. Warren has four leading pens, Ford's Riverbank Farm has two, George A. Pearce two, and Weber Duck Farm two.

In the New Hampshire division, A. J. Williams, Eben Wood, W. H. Boulware, and Pine Top Poultry Farm each place two.

In Barred Rocks, Dryden has four, Weber Duck Farm four, Riley Poultry Farm three, R. C. E. Wallace two.

In the White Rock section, Kalerok Farm rates three, Oscar W. Holtzapple two, Homestead Farms two, A. C. Lawton two and E. A. Hirt two.

### Twenty Highest Pens, All Breeds, to March 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 1565 | 1666.50 | Storrs |
| Thomas Mettler | Rhode Island Red | 1632 | 1632.20 | Hunterdon, N. J. |
| Nelson's Leghorn Breeding Farm | White Leg. | 1545 | 1625.20 | Texas |
| J. J. Warren | Rhode Island Red | 1561 | 1602.05 | Passaic, N. J. |
| Foreman Poultry Farm | White Leghorn | 1542 | 1600.85 | Texas |
| Guy A. Leader | White Leghorn | 1576 | 1600.30 | Pennsylvania |
| Vans R. Otey | Rhode Island Red | 1550 | 1595.00 | Florida |
| Ford's Riverbank Farm | Rhode Island Red | 1627 | 1592.85 | Maine |
| Kauder's Pedigreed Leghorns | White Leghorn | 1521 | 1570.60 | Georgia |
| Woodlawn Farm | White Leghorn | 1473 | 1570.50 | Texas |
| Dublin Poultry Farm | White Leghorn | 1565 | 1565.70 | Georgia |
| Sand Springs Home Farm | White Leghorn | 1494 | 1557.50 | Texas |
| W. A. Seidel | White Leghorn | 1474 | 1555.25 | Texas |
| John A. Clear | White Leghorn | 1473 | 1551.95 | Hunterdon, N. J. |
| D. I. Goodenough | Rhode Island Red | 1470 | 1548.60 | Storrs |
| A. J. Williams | New Hampshire | 1523 | 1548.10 | Florida |
| Kauder's Pedigreed Leghorns | White Leghorn | 1509 | 1544.90 | Georgia |
| Erath Egg Farm | White Leghorn | 1504 | 1542.95 | Texas |
| R. W. Anderson | Rhode Island Red | 1455 | 1542.15 | Storrs |
| J. J. Warren | Rhode Island Red | 1441 | 1534.65 | Storrs |

### High Pen in Each Standard Test for February

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Ford's Riverbank Farm | Rhode Island Red | 335 | 345.25 | Maine |
| Donald L. Crooks | Rhode Island Red | 309 | 333.85 | Storrs |
| Vandermast Farm | White Leghorn | 310 | 330.85 | Pennsylvania |
| J. A. Hanson | White Leghorn | 308 | 329.45 | Arizona |
| Thomas Mettler | Rhode Island Red | 315 | 325.95 | Hunterdon, N. J. |
| Foreman Poultry Farm | White Leghorn | 296 | 319.00 | Texas |
| Foreman Poultry Farm | White Leghorn | 311 | 318.20 | New York State |
| J. J. Warren | Rhode Island Red | 294 | 316.95 | Rhode Island |
| E. B. Parmenter | Rhode Island Red | 297 | 314.10 | Florida |
| Chas. M. Lathrop | Barred Rock | 293 | 314.10 | Passaic, N. J. |
| Egyptian Hatchery | Barred Rock | 307 | 313.85 | Missouri |
| Pine Top Poultry Farms | New Hampshire | 284 | 309.30 | Georgia |
| Booth Farms and Hatchery | White Leghorn | 280 | 307.35 | Oklahoma |
| Ford's Riverbank Farm | Rhode Island Red | 287 | 299.35 | Michigan |
| Content Farms | White Leghorn | 278 | 293.85 | Central New York |
| E. B. Parmenter | Rhode Island Red | 277 | 292.75 | Western New York |

### High Pen in Each Breed to March 1—(151 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 1565 | 1666.50 | Storrs |
| Thomas Mettler | Rhode Island Red | 1632 | 1632.20 | Hunterdon, N. J. |
| A. J. Williams | New Hampshire | 1523 | 1548.10 | Florida |
| Eben Wood | Barred Rock | 1431 | 1413.05 | Maine |
| Oscar W. Holtzapple | White Rock | 1398 | 1393.80 | Georgia |
| Lonnie Van Sant | Black Australorp | 1341 | 1388.75 | Arizona |
| Colonial Poultry Farm | White Wyandotte | 1312 | 1358.95 | Texas |
| Ben G. Monroe | Ancona | 1150 | 1173.95 | Texas |
| Colonial Poultry Farm | White Minorca | 1056 | 1084.20 | Georgia |
| Lindstrom Poultry Farm | Buff Minorca | 1065 | 1056.10 | Missouri |
| Raymond Murphy | White Giant | 918 | 971.80 | Missouri |
| Harry L. Phillips | Columbian Rock | 942 | 968.05 | Missouri |
| Donald C. Chandler | Silver Laced Wyandotte | 1003 | 959.20 | Maine |
| S. E. Raymond | Lamona | 863 | 914.05 | Storrs |
| Laclede Hatchery | Buff Orpington | 836 | 785.85 | Florida |
| Blue Ribbon Farm | Rhode Island White | 740 | 750.05 | Texas |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 725 | 749.50 | Maine |
| Wm. W. Lehman | Buff Leghorn | 735 | 728.70 | Pennsylvania |
| Cedarlaid Poultry Farm | Brown Leghorn | 805 | 681.85 | Florida |
| Hall Bros. Hatchery | Cross | 529 | 545.90 | New York State |

### High Pen in Each Standard Test to March 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 1565 | 1666.50 | Storrs |
| Thomas Mettler | Rhode Island Red | 1632 | 1632.20 | Hunterdon, N. J. |
| Nelson's Leghorn Breeding Farm | White Leg. | 1545 | 1625.20 | Texas |
| J. J. Warren | Rhode Island Red | 1561 | 1602.05 | Passaic, N. J. |
| Guy A. Leader | White Leghorn | 1576 | 1600.30 | Pennsylvania |
| Vans R. Otey | Rhode Island Red | 1550 | 1595.00 | Florida |
| Ford's Riverbank Farm | Rhode Island Red | 1627 | 1592.85 | Maine |
| Kauder's Pedigreed Leghorns | White Leghorn | 1521 | 1570.60 | Georgia |
| Booth Farms and Hatchery | White Leghorn | 1441 | 1524.10 | Oklahoma |
| Ford's Riverbank Farm | Rhode Island Red | 1498 | 1512.15 | Michigan |
| J. J. Warren | Rhode Island Red | 1416 | 1504.70 | Rhode Island |
| Content Farms | White Leghorn | 1424 | 1446.05 | Central New York |
| Colonial Poultry Farm | New Hampshire | 1377 | 1394.40 | Arizona |
| Dryden Poultry Breeding Farm | Barred Rock | 1339 | 1360.75 | Missouri |
| Foreman Poultry Farm | White Leghorn | 1372 | 1334.45 | New York State |
| J. J. Warren | Rhode Island Red | 1216 | 1270.75 | Western New York |

## High Hen in Each Standard Test for February

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Chas. M. Lathrop | Barred Rock | 28 | 30.80 | Passaic, N. J. |
| Dryden Poultry Breeding Farm | White Leghorn | 28 | 30.75 | Pennsylvania |
| John A. Clear | White Leghorn | 28 | 30.75 | Hunterdon, N. J. |
| Eben Wood | New Hampshire | 28 | 30.70 | New York State |
| Ford's Riverbank Farm | Rhode Island Red | 28 | 30.35 | Maine |
| Weber Duck Farm | Rhode Island Red | 28 | 30.30 | Georgia |
| Sunshine Egg Farm | White Leghorn | 28 | 30.30 | Florida |
| Anton Mazanec | Rhode Island Red | 28 | 30.20 | Texas |
| Egyptian Hatchery | Barred Rock | 28 | 30.00 | Missouri |
| Donald L. Crooks | Rhode Island Red | 28 | 29.70 | Storrs |
| Booth Farms and Hatchery | White Leghorn | 27 | 29.70 | Oklahoma |
| St. Paul Hatchery | Rhode Island Red | 27 | 29.65 | Michigan |
| G. Clifford Butterworth | Rhode Island Red | 27 | 29.50 | Rhode Island |
| R. C. E. Wallace | Barred Rock | 27 | 29.40 | Central New York |
| Bonnie Brae Farm | Black Australorp | 26 | 28.60 | Arizona |
| Caster's Red-W-Farm | Rhode Island Red | 28 | 28.50 | Western New York |

## High Hen in Each Breed to March 1—(151 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| A. E. Guinn | White Leghorn | 146 | 158.80 | Georgia |
| Weber Duck Farm | Rhode Island Red | 141 | 154.35 | Michigan |
| Dryden Poultry Breeding Farm | Barred Rock | 140 | 149.60 | Missouri |
| Colonial Poultry Farm | New Hampshire | 141 | 149.20 | Arizona |
| Lindstrom Poultry Farm | White Wyandotte | 130 | 141.50 | Georgia |
| E. S. McSweeny | Black Australorp | 132 | 139.25 | Arizona |
| Raymond Murphy | White Giant | 124 | 133.45 | Missouri |
| Oscar W. Holtzapple | White Rock | 122 | 131.20 | Georgia |
| Colonial Poultry Farm | White Minorca | 114 | 119.20 | Georgia |
| S. E. Raymond | Lamona | 105 | 114.85 | Storrs |
| Eriksen's Ancona Yards | Ancona | 118 | 113.10 | Storrs |
| Donald C. Chandler | Silver Laced Wyandotte | 112 | 113.00 | Maine |
| Blue Ribbon Farm | Rhode Island White | 98 | 105.80 | Texas |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 99 | 105.40 | Maine |
| Lindstrom Poultry Farm | Buff Minorca | 99 | 101.95 | Missouri |
| Harry L. Phillips | Columbian Rock | 106 | 100.05 | Missouri |
| Iowa Master Breeders | Buff Orpington | 95 | 92.15 | Missouri |
| Cedarlaid Poultry Farm | Brown Leghorn | 100 | 91.65 | Florida |
| Hall Bros. Hatchery | Cross | 83 | 89.60 | New York State |
| Missouri Valley Hatchery | Buff Leghorn | 101 | 89.55 | Maine |

## High Hen in Each Standard Test to March 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| A. E. Guinn | White Leghorn | 146 | 158.80 | Georgia |
| Weber Duck Farm | Rhode Island Red | 141 | 154.35 | Michigan |
| W. A. Seidel | White Leghorn | 141 | 154.15 | Texas |
| E. B. Parmenter | Rhode Island Red | 140 | 151.75 | Rhode Island |
| George A. Pearce | Rhode Island Red | 141 | 151.65 | Passaic, N. J. |
| Dryden Poultry Breeding Farm | Barred Rock | 140 | 149.60 | Missouri |
| Kauder's Pedigreed Leghorns | White Leghorn | 137 | 149.30 | Storrs |
| Colonial Poultry Farm | New Hampshire | 141 | 149.20 | Arizona |
| Thomas Mettler | Rhode Island Red | 138 | 149.20 | Hunterdon, N. J. |
| Gulfkist Poultry Farm | White Leghorn | 137 | 148.70 | Florida |
| Guy A. Leader | White Leghorn | 138 | 147.00 | Pennsylvania |
| Redbird Farm | Rhode Island Red | 139 | 145.95 | Maine |
| Sand Springs Home Farms | White Leghorn | 133 | 142.70 | Oklahoma |
| Douglaston Manor Farm | Rhode Island Red | 131 | 139.90 | Western New York |
| R. C. E. Wallace | Barred Rock | 132 | 133.35 | Central New York |
| J. J. Warren | Rhode Island Red | 122 | 132.65 | New York State |

## 20 Highest White Leghorn Pens in Country to March 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Kauder's Pedigreed Leghorns | 1565 | 1666.50 | Storrs |
| Nelson's Leghorn Breeding Farm | 1545 | 1625.20 | Texas |
| Foreman Poultry Farm | 1542 | 1600.85 | Texas |
| Guy A. Leader | 1576 | 1600.30 | Pennsylvania |
| Kauder's Pedigreed Leghorns | 1521 | 1570.60 | Georgia |
| Woodlawn Farm | 1473 | 1570.50 | Texas |
| Dublin Poultry Farm | 1565 | 1565.70 | Georgia |
| Sand Springs Home Farm | 1494 | 1557.50 | Texas |
| W. A. Seidel | 1474 | 1555.25 | Texas |
| John A. Clear | 1473 | 1551.95 | Hunterdon, N. J. |
| Kauder's Pedigreed Leghorns | 1509 | 1544.90 | Georgia |
| Erath Egg Farm | 1504 | 1542.95 | Texas |
| I. Commer | 1499 | 1529.20 | Texas |
| Booth Farms and Hatchery | 1468 | 1529.00 | Florida |
| Erath Egg Farm | 1483 | 1528.10 | Texas |
| Booth Farms and Hatchery | 1441 | 1524.10 | Oklahoma |
| A. E. Guinn | 1526 | 1522.00 | Georgia |
| W. A. Seidel | 1441 | 1519.55 | Texas |
| Gulfkist Poultry Farm | 1499 | 1517.10 | Florida |
| Woodlawn Farm | 1451 | 1505.75 | Texas |

## 20 Highest Rhode Island Red Pens in Country to March 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Thomas Mettler | 1632 | 1632.20 | Hunterdon, N. J. |
| J. J. Warren | 1561 | 1602.05 | Passaic, N. J. |
| Vans R. Otey | 1550 | 1595.00 | Florida |
| Ford's Riverbank Farm | 1627 | 1592.85 | Maine |
| D. I. Goodenough | 1470 | 1548.60 | Storrs |
| Ralph W. Anderson | 1455 | 1542.15 | Storrs |
| J. J. Warren | 1441 | 1534.65 | Storrs |
| Ford's Riverbank Farm | 1498 | 1512.15 | Michigan |
| J. J. Warren | 1416 | 1504.70 | Rhode Island |
| J. J. Warren | 1458 | 1503.95 | Storrs |
| R. E. & F. H. Kendrick | 1405 | 1477.45 | Rhode Island |
| Cane Poultry Farm | 1435 | 1475.65 | Hunterdon, N. J. |
| George A. Pearce | 1510 | 1473.55 | Passaic, N. J. |
| L. D. Bartholomew | 1470 | 1470.50 | Storrs |
| Weber Duck Farm | 1512 | 1469.30 | Georgia |
| Homestead Farm | 1410 | 1468.00 | Storrs |
| George A. Pearce | 1480 | 1464.25 | Hunterdon, N. J. |
| Wegatepa Farms | 1395 | 1452.85 | Maine |
| Weber Duck Farm | 1460 | 1450.35 | Florida |
| Hall Brothers | 1397 | 1445.00 | Storrs |

## 20 Highest New Hampshire Pens in Country to March 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| A. J. Williams | 1523 | 1548.10 | Florida |
| A. J. Williams | 1468 | 1519.25 | Florida |
| Eben Wood | 1464 | 1510.20 | Maine |
| Thomas J. Harrold | 1523 | 1500.00 | Georgia |
| Steelman Poultry Farms | 1423 | 1476.20 | Storrs |
| Hubbard Farms | 1466 | 1473.25 | Storrs |
| W. H. Boulware | 1377 | 1407.05 | Florida |
| Quimby School | 1478 | 1399.45 | Maine |
| Colonial Poultry Farm | 1377 | 1394.40 | Arizona |
| James H. Horne | 1353 | 1375.85 | Maine |
| Fuzzydele Farms | 1281 | 1364.80 | Pennsylvania |
| Pine Top Poultry Farm | 1256 | 1344.00 | Georgia |
| Edward N. Larrabee | 1282 | 1339.90 | Storrs |
| Del Rio Farm | 1272 | 1328.70 | Arizona |
| Pine Mountain Valley Farms | 1250 | 1316.70 | Georgia |
| Stroehlein Brothers | 1296 | 1299.95 | Passaic, N. J. |
| W. H. Boulware | 1303 | 1290.80 | Georgia |
| Pine Top Poultry Farm | 1215 | 1290.20 | Maine |
| S. C. Houck | 1244 | 1270.05 | Pennsylvania |
| Eben Wood | 1210 | 1265.20 | Passaic, N. J. |

## 20 Highest Barred Plymouth Rock Pens in Country to March 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Eben Wood | 1431 | 1413.05 | Maine |
| Dryden Poultry Breeding Farm | 1381 | 1370.35 | Central New York |
| Dryden Poultry Breeding Farm | 1339 | 1360.75 | Missouri |
| Fuzzydele Farms | 1297 | 1310.95 | Storrs |
| Riley Poultry Farm | 1305 | 1310.60 | Georgia |
| Riley Poultry Farm | 1344 | 1307.00 | Michigan |
| Dryden Poultry Breeding Farm | 1332 | 1296.15 | Pennsylvania |
| Riley Poultry Farm | 1259 | 1291.15 | Oklahoma |
| Booth Farms | 1377 | 1272.50 | Florida |
| Weber Duck Farm | 1320 | 1271.10 | Maine |
| Chas. M. Lathrop | 1212 | 1270.55 | Passaic, N. J. |
| Weber Duck Farm | 1269 | 1249.60 | Georgia |
| Weber Duck Farm | 1248 | 1245.65 | Florida |
| Chas. F. Eller | 1259 | 1220.30 | Florida |
| R. C. E. Wallace | 1213 | 1213.85 | Central New York |
| Weber Duck Farm | 1190 | 1208.45 | Passaic, N. J. |
| Gulf Coast Hatchery | 1234 | 1202.20 | Florida |
| Dryden Poultry Breeding Farm | 1220 | 1198.50 | Storrs |
| R. C. E. Wallace | 1218 | 1198.20 | Georgia |
| David Cohen | 1183 | 1193.75 | Central New York |

## 20 Highest White Plymouth Rock Pens in Country to March 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Oscar W. Holtzapple | 1398 | 1393.80 | Georgia |
| Homestead Farms | 1303 | 1267.90 | Pennsylvania |
| Kalerok Farm | 1192 | 1243.10 | Rhode Island |
| Booth Farms | 1199 | 1230.70 | Missouri |
| Tender Broiler Hatchery | 1232 | 1218.10 | Oklahoma |
| Albert C. Lawton | 1165 | 1216.30 | Rhode Island |
| Riley Poultry Farm | 1257 | 1204.95 | Oklahoma |
| T. S. Townsley | 1166 | 1193.40 | Georgia |
| Oscar W. Holtzapple | 1184 | 1174.75 | Pennsylvania |
| Earl C. Dunham | 1139 | 1150.70 | Georgia |
| Kalerok Farm | 1099 | 1138.70 | Storrs |
| Homestead Farms | 1135 | 1126.80 | Storrs |
| Clyde Cochran's Hatchery | 1158 | 1103.90 | Oklahoma |
| Quimby School | 1058 | 1093.80 | Rhode Island |
| E. A. Hirt | 1054 | 1079.55 | Storrs |
| E. A. Hirt | 1066 | 1079.30 | Maine |
| Lewis Farms | 1092 | 1075.60 | Rhode Island |
| Colonial Poultry Farm | 1087 | 1068.75 | Maine |
| Kalerok Farm | 1023 | 1054.45 | Pennsylvania |
| Albert C. Lawton | 1038 | 1053.75 | Storrs |

## Average Production in Each Test to March 1

| Test | No. Birds | Eggs Per Bird | Points Per Bird | Per Cent Mortality for Feb | Per Cent Mortality to Mar. 1 |
|---|---|---|---|---|---|
| Texas | 910 | 93.03 | 95.53 | 2.08 | 6.92 |
| Arizona | 260 | 88.15 | 88.77 | .76 | 5.76 |
| Georgia | 1,300 | 90.79 | 88.55 | 2.53 | 10.23 |
| Hunterdon, New Jersey | 650 | 86.79 | 87.18 | 3.38 | 8.46 |
| Storrs* | 1,300 | 82.62 | 83.74 | 1.53 | 5.69 |
| Passaic, New Jersey | 1,001 | 83.91 | 83.60 | 1.79 | 5.99 |
| Pennsylvania | 1,131 | 82.00 | 82.80 | 1.41 | 5.30 |
| Florida | 1,248 | 83.47 | 81.95 | 1.92 | 7.53 |
| Oklahoma | 650 | 78.73 | 78.92 | 1.84 | 7.38 |
| Rhode Island | 650 | 74.60 | 77.25 | .92 | 7.38 |
| Michigan | 897 | 75.15 | 75.74 | 2.34 | 8.69 |
| Maine | 1,027 | 70.73 | 69.51 | 4.28 | 11.48 |
| Western New York | 884 | 69.89 | 69.00 | 1.13 | 3.73 |
| Missouri | 780 | 65.48 | 67.45 | 4.74 | 11.28 |
| Central New York | 910 | 63.87 | 63.56 | 1.97 | 4.61 |
| New York State* | 1,222 | 64.96 | 63.54 | 1.80 | 7.77 |
| All Tests | 14,820 | 78.30 | 78.21 | 2.18 | 7.44 |

* One week behind other tests in opening because of hurricane.

## High Pen, Each Breed, in Illinois Non-Standard Test to March 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Egyptian Hatchery | White Leghorn | 757 | 768.45 |
| Egyptian Hatchery | Barred Rock | 674 | 658.60 |
| Mrs. Curtis Manshak | White Rock | 625 | 622.25 |
| Corn Belt Hatchery | New Hampshire | 548 | 587.75 |
| Illinois Hatchery | Rhode Island Red | 467 | 504.05 |
| Macomb Hatchery | Buff Orpington | 412 | 411.90 |
| Belldear Hatchery | White Wyandotte | 419 | 400.85 |
| H. R. Harnes | Brown Leghorn | 326 | 296.55 |
| Wallace Moody | Buff Rock | 300 | 283.20 |

## 5 High Pens, R. O. P. Progeny Test, Paterson, N. J., to March 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Wegatepa Farms | Rhode Island Red | 1658 | 1657 |
| Stroehlein Brothers | White Leghorn | 1497 | 1539 |
| E. B. Parmenter | Rhode Island Red | 1461 | 1510 |
| Oak Knoll Poultry Farm | White Leghorn | 1489 | 1465 |
| R. A. Hopkinson | White Leghorn | 1384 | 1431 |

## High Pen, Each Breed, Vineland, N. J., Hen Test to March 1

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Dembro Poultry Farm | White Leghorn | 767 | 839 | Two-Year |
| J. J. Warren | Rhode Island Red | 602 | 654 | Two-Year |
| Nedlar Farm | New Hampshire | 452 | 493 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 356 | 387 | Two-Year |
| J. A. Hanson | White Leghorn | 479 | 522 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 424 | 459 | Four-Year |
| Raymond Gardner | White Rock | 82 | 89 | Four-Year |

## High Pen, Each Breed, Vineland, N. J., Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| J. J. Warren | Rhode Island Red | 4508 | 4875 | Two-Year |
| Sebold Poultry Farm | White Leghorn |  | 4456 | Two-Year |
| Nedlar Farm | New Hampshire | 4084 | 4389 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 3399 | 3581 | Two-Year |
| J. A. Hanson | White Leghorn | 6383 | 6862 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 9088 | 9577 | Four-Year |
| Raymond Gardner | White Rock | 5034 | 5332 | Four-Year |

## High Pen, Each Breed in Pennsylvania Hen Test to March 1

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| John Schrope | White Leghorn | 1048 | 1140 | Two-Year |
| E. B. Parmenter | Rhode Island Red | 732 | 801 | Two-Year |
| Fuzzydele Farms | New Hampshire | 705 | 769 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 617 | 673 | Two-Year |
| Fuzzydele Farms | Barred Rock | 609 | 666 | Three-Year |
| A. M. Wolgemulth | White Leghorn | 561 | 610 | Three-Year |

## High Pen, Each Breed in Pennsylvania Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| J. A. Hanson | White Leghorn | 4460 | 4770 | Two-Year |
| E. B. Parmenter | Rhode Island Red | 4068 | 4286 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 3787 | 4000 | Two-Year |
| Fuzzydele Farms | New Hampshire | 3779 | 3957 | Two-Year |

* * *

## *Among Our Contributors*

**Stella Costigan** (p. 203), is bacteriologist and pathologist in the Research Department of the Pennsylvania Salt Manufacturing Company. The work of this department includes post mortem examination of chickens, fox, mink, rabbits, etc.; bacteriological examinations of milk, water and beverage samples submitted to the laboratories; and research problems like the smoking of poultry and new uses for various products of the Pennsylvania Salt Manufacturing Company. Miss Costigan graduated from the University of Wisconsin where she specialized in bacteriology.

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# NATIONAL POULTRY DIGEST

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Vol. 1, No. 5 May, 1939

# What the World's Poultry Congress Can Mean to the Poultry Industry

By A. G. Philips
Allied Mills, Chicago, Illinois

*Condensed from a Talk*

THE World's Poultry Congress job is a selling job, a job of selling the industry itself and the world in general the value and the place of the poultry industry.

I have a little 4-page circular which I wrote in 1914 while at Purdue University. It is on a subject that at that time was very important to the farmers of Indiana and the Middle West. The writing of it was approved by the dean and the director of the experiment station, and it was published at the expense of the taxpayers' money. This is the subject: "Setting a Hen," and that was just 25 years ago.

I wonder if you realize that in many of our corn belt states, 25 years ago was an age of "setting a hen." That is ridiculous today, but some of us didn't think it was ridiculous then. Do you think that when that circular was written, I or the industry I represented stood very high in the minds of the faculty of Purdue University? Do you think that the poultry industry in the State of Indiana in 1914, if that circular represents the situation, stood very high and was considered very important in the minds of farmers or of agricultural-minded people?

A few years later, the director of the county agents of Indiana said to me, "Show me a poultry farm in Indiana that is making a profit. Show me one that has ever made any money." He said it with derision and he pointed to me the number of fruit farms that were profitable. Of course, he wouldn't dare ask me that now.

Presented at Poultry Industry Leaders' Meeting Sponsored by the Industry Committee of the Seventh World's Poultry Congress, Cleveland, April 27

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NATIONAL
POULTRY DIGEST

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# What the World's Poultry Congress Can Mean to the Poultry Industry

By A. G. Philips
Allied Mills, Chicago, Illinois

*Condensed from a Talk*

THE World's Poultry Congress job is a selling job, a job of selling the industry itself and the world in general the value and the place of the poultry industry.

I have a little 4-page circular which I wrote in 1914 while at Purdue University. It is on a subject that at that time was very important to the farmers of Indiana and the Middle West. The writing of it was approved by the dean and the director of the experiment station, and it was published at the expense of the taxpayers' money. This is the subject: "Setting a Hen," and that was just 25 years ago.

I wonder if you realize that in many of our corn belt states, 25 years ago was an age of "setting a hen." That is ridiculous today, but some of us didn't think it was ridiculous then. Do you think that when that circular was written, I or the industry I represented stood very high in the minds of the faculty of Purdue University? Do you think that the poultry industry in the State of Indiana in 1914, if that circular represents the situation, stood very high and was considered very important in the minds of farmers or of agricultural-minded people?

A few years later, the director of the county agents of Indiana said to me, "Show me a poultry farm in Indiana that is making a profit. Show me one that has ever made any money." He said it with derision and he pointed to me the number of fruit farms that were profitable. Of course, he wouldn't dare ask me that now.

Presented at Poultry Industry Leaders' Meeting, Sponsored by the Industry Committee of the Seventh World's Poultry Congress, Cleveland, April 27

INTENTIONAL 2ND EXPOSURE

These two experiences merely show that these few years back this poultry industry had mightly little standing in many of the Middle Western States. It shows the problem of education that has been necessary in the last 25 years, and as you think that it has happened in 25 years, you see the accomplishment.

### Importance of Poultry Not Realized

I doubt if it is true that the economic place of the poultry industry in agriculture is understood by the people of the United States. I have always felt and insisted that the biggest job we had to do was to have our people realize that poultry holds a definite economic place in agriculture. Without that belief in their minds, we could do nothing. No phase of agriculture, however, in the last 25 years has made a greater growth or a greater development than the poultry industry.

If the "setting hen" in the Middle West was a problem in 1914, certainly we have made great strides, but do the people of the United States know it?

Now when a business is known to be economically sound, and I maintain the poultry industry is, it does the following:

1. It attracts smart and thinking people.

2. It becomes dignified in the minds of everyone.

3. It challenges the ambitious youth of the nation. Reese Hicks remembers when I was a kid in 1902 with some chickens. There were only two other boys that I knew—and one of them wanted to spend his time fighting chickens and the other wanted to raise Wyandottes—who thought the poultry business was a dignified thing. When I took animal husbandry at Kansas State College, the head of the animal husbandry department said, "Phoey." Criticisms of the poultry business were unpleasant to me. No encouragement was given to me as a youth. If this industry is sound and dignified and economical, it will attract the youth.

4. It encourages research by educational institutions and also by the industry.

5. It produces things needed by the world and it makes a profit for those connected with it.

### A Grown-up Industry

The poultry business has passed through a period of childhood, through the "growing pain" period, and it may now be grown up. In some ways I think it is "still going to college," however, and learning, but in other ways, it is stepping out into leadership and so showing signs of maturity. Let's give it a chance to "strut its stuff" with all of the enthusiasm and vim of the modern generation.

People like to go with advancing things. People like to "ride on the bandwagon" that is big and roomy and playing a good tune, especially if it is popular music. They don't like to ride or follow anything else. Folks want to invest in a line of business that is sound and stable and weathers well the influence of erratic economics.

I claim that the poultry business is a big business, but what is business? I think business is the honest desire to serve. Business is the science of service. He profits most who serves the best, and that involves giving or service. Now let's tell that to everybody. Let's sell it to everybody.

We have to sell World's Poultry Congress. We have to make somebody else want it as bad as we want them to want it. It is going to challenge our thinking as we have never done before in the industry. The question of "it can't be done" and "why can't it be done?" doesn't enter the picture. It is, how are we going to do it? Will we sell it? And by selling it we dignify the industry and those of us who are in the industry in a business way will get our share of the profits because it will stimulate our business, so what can the Poultry Congress do for the poultry industry?

### What the Congress Can Do

1. It can popularize, based on sound knowledge — get that, popularize, based on sound knowledge—the value of poultry and eggs as food. Based on anything else but sound knowledge, it can mean little.

2. It will dignify the industry and give it high standing in agricultural society. I'd like to say that so many times to you.

And this thing we are going to have in July will come nearer dignifying it than any one thing that has ever been done in this country. It will make people poultry-conscious.

3. It will create a better understanding of the problems of every phase of our business, so we can all work to a common end.

4. It will build friendships that bring happiness.

5. It will build men and make them bigger. I have seen it happen already. Men in this group who have worked the last year are bigger than anybody ever thought they could be and this is going to make them bigger.

6. It will create work, putting our minds to things other than war.

7. It will teach us how to sell.

But it can't be done alone.

Down in New Orleans somebody gave an extension lecture a number of years ago. A good many of the people there are of French descent. They were talking about the word "cooperate," so timeworn and abused and misunderstood. After they were done with the talk, somebody said to the audience, "Do you understand what we mean by this word 'cooperate'?" and one Frenchman said, "Yes, I do. I understand." "What is it?" he was asked. "It's just like a bunch of bananas. One banana says to the other, 'Stick together, fellows. It's when they get us off by ourselves that we get skinned.' "

And that is what we have been doing in the poultry business until this opportunity came.

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❡ THE ATTENDANCE at the New York Fair will pass 60,000,000 visitors, according to present estimates and surveys. The great 1,216½-acre tract—the largest area ever devoted to a world's fair—will be studded with more than 70 restaurants, with seating accommodations for 43,200 people at one time, for the task of feeding all of these people is recognized as one of the most colossal jobs of the Fair.

How much poultry such an unprecedented mass movement of population is going to consume is, of course, partly a matter of conjecture, though it is reasonably assumed that the percentage of poultry in relation to other delectable foodstuffs will be the usual high percentage of crowds in holiday mood.

—Utah Poultry Co-operator, April, 1939.

# The Challenge to Modern Poultry Breeding

By Horace W. Dryden

Dryden Poultry Breeding Farm, Modesto, Calif.

*Condensed from Pacific Rural Press*

THIRTY years ago there was no such thing as a commercial poultry industry anywhere in the world for the simple reason that no strains or breeds of fowls existed of sufficient productivity to make specialized poultry keeping profitable. Eggs and poultry were by-products of general farming; and until some specialization occurred we had no industrial development involving the hen, such as packing and refrigeration plants, hatcheries, etc.

As a breeder, I take pride in the fact that we have aided in the creation of a new industry. The mere fact that specialized poultry farms exist today is a monument to the work of the breeder. But having been in a large measure responsible for the development of a large and growing industry, the breeder is challenged today by the greater responsibility of making more sure the success of those who are therein engaged. Breeding will not solve all of our present day poultry problems, but it alone can solve many of them. And for this reason breeding is destined to play an important role in increasing efficiency of poultry production to a level where the hen may easily become the leading agricultural unit of the future.

### Our Industry is Inefficient

If all chicks that were brooded lived, and if all pullets that were placed in the laying houses lived for at least one year and produced 200 or 250 eggs in that period, eggs and poultry meat, because of lower prices, would be available to many more families than at present, and the total income of the individual producer would be greater. Ideal conditions will never prevail, but few agricultural products are probably produced less efficiently today than eggs, and it is a wonder that we have an industry so big and at the same time so inefficient.

### Better Livability is Necessary

What is the modern task and responsibility of the breeder? How can he best serve the poultry industry in the immediate future? Briefly, this task is the same as it always has been and probably always will be—to provide stock of superior production and meat qualities and with the vitality, stamina and disease-resistance to withstand the severe test of intensive commercial production. Formerly the great need was for fowls that would lay, particularly in fall and winter. We still need good production and will need it increasingly in the future, but the poultry industry today needs in addition a much better general level of livability.

I don't subscribe to the popular idea that breeding for better production has in some manner weakened our present pure breeds and brought grief down on the heads of the commercial producer. There is little evidence to indicate that production breeding by itself is in any way responsible for our main general causes of poultry mortality today. But breeders must set themselves to the task of breeding better livability into their stock as well as better production if they are to meet their new responsibilities. There can be no doubt today that faulty heredity, entirely disassociated from the matter of production, is probably responsible for one-fourth or one-third of our general mortality. This type of mortality will occur almost regardless of environmental conditions, favorable or otherwise. Prevention of the other types can be achieved only through better sanitation, housing, feeding and management.

### Laying Tests Deserve Credit

The official laying tests of the United States undoubtedly deserve the chief credit for the great improvement that has been brought about in rate of production and size of egg of our domestic fowl. They have emphasized and dramatized the importance and indispensability of selective pedigree breeding. And with the laying tests now requiring a high standard of livability for awards, we can hope for a great deal of progress along a line that is of most vital concern to poultrymen everywhere.

### Breeding According to Families

Every pedigree breeder knows that there are differences in livability of different families of hens even when fed and housed alike. Some families of full sisters or half sisters will show almost 100 per cent livability, while others will be practically decimated in the course of a few months. This condition will exist in poor laying as well as in good laying lines, although the highest producing families usually show the lowest mortality. Why family differences exist is not so important as the fact that they do exist and that it has been found that by breeding only from families showing low mortality the general livability of a strain can be definitely improved.

The family is becoming the chief unit of comparison on the modern breeding farm. "Progeny record keeping" is not a new development, however. Good breeders have always followed the system, even when most of the records were obtained from close observation and carried in the breeder's head.

In this connection it must be remembered that breeding is not and never will be an "exact science," because of the environmental factor which makes all progeny records to a certain extent inaccurate. Careful judgment and a keen sense of observation are necessary in the study and use of family records, the records themselves being of value only to the extent that they are properly interpreted, evaluated and used.

Such breeding is not child's play. The record keeping on a large breeding flock is enormous and the expense high. But such pedigree breeding will have to be done if poultry raising is to continue as a safe means of livelihood for the poultryman.

### Entire Family Tree Important

The opportunities for improvement through simple flock or individual selection are limited by the genetic laws that govern inheritance. Breeding from nothing but very old hens, without pedigree or family selection, cannot be expected to result in any very great improvement in livability, or at least in as rapid improvement as

Pacific Rural Press and California Farmer, 683 Chamber of Commerce Bldg.,
Los Angeles, Calif. (Pacific Rural Press, Feb. 4, 1939)

the poultry industry needs. If I were a commercial poultryman and given my choice, I would take stock from carefully bred pullets rather than from unpedigreed very old hens who may have lived long as individuals, but who carry family weaknesses that they are sure to transmit to some of their offspring. The entire family tree rather than a few of its branches is the thing.

I may cite an example of our own of the limitations of purely individual or "flock" selection in accomplishing a definite objective. Our strain of Leghorns, like many others, has always had a minor defect of throwing a small percentage of "side sprigs" in each generation, a defect of type unimportant to the commercial producer, but of some consequence to the breeder when he has to market otherwise valuable pedigreed cockerels. We have never bred from a hen or male in a good many years that shows this defect, but about the same number of side sprigs appear in each generation and may continue to appear until such time as we feel we can afford to discard all families in their entirety that display this hereditary character. The complicated mode of inheritance of side sprigs is probably not dissimilar to the method of transmission of some of our inherited causes of mortality.

### Not Enough Actual Testing

There is more to good breeding than mere record keeping. Sometimes I think the tendency today is towards too many records and not enough actual testing. And there is danger in overlooking and neglecting broad objectives and fundamentals in too great attention to details.

A breeder may compile records and still not know how his stock will be apt to perform in the "field" unless his records have been obtained under conditions that test the vitality of the fowl. For this reason, we have never believed in "pampering" future breeding stock. We believe in rearing young stock on the same ground each year, all laying pullets have access to dirt yards such as prevail on the majority of farms, and are out in these early and late, rain or shine, winter and summer. Our houses are wide open on at least two sides and the wind bristles through on the cold winter days. We have never used anti-cannibalism devices, such as "hen specs," and I think one of the main reasons we don't need such contraptions is because cannibalism has been pretty much eliminated in the stock through natural and pedigree selection. We don't use lights to get out the last egg. Neither do we use worm capsules, medicines or tonics. If a pullet ends the year with a record of 300 eggs, we consider that she has done so under her own power.

### Too Much Pampering

If the poultry industry has been guilty of one serious mistake in recent years that has had an important influence on mortality, I would say that it has been a rather general disregard of the principle of natural selection and survival of the fittest. There has been too much actual pampering of breeding stock, too many tight houses, too many concrete and wire yards, too much general mechanization of what is essentially a natural process, and too much breeding from unpedigreed pullets that have not proved their mettle—and by "pullets" I mean any hen that has not laid for at least a full year before being mated.

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# Eight Sound Poultry Practices

By Dr. M. A. Jull
University of Maryland

*Condensed from Poultry Tribune*

THERE are at least eight sound poultry practices that, if carried out religiously on the farm and commercial poultry plant, will increase the profits from the flock. Six of these practices have to do with the kind of stock kept and with management problems, and the other two with problems of marketing. Moreover, success with respect to the last two practices is dependent largely upon the kind of stock kept.

### 1. More Rigid Selection

In practically all parts of the United States, more than half of the total poultry income is obtained from market eggs. In California, it amounts to as much as 90 per cent in many cases; in the Middle West, about 65 per cent on the average. It follows, therefore, that the key to profitableness depends upon the breeding quality of the laying stock. Farmers and commercial poultrymen should select their breeding stock much more carefully from year to year, with a view toward developing the egg laying potentialities of the pullets raised each year.

The importance of well-bred laying stock is well illustrated in the records obtained from 49 Connecticut poultry farms, for the poultry year ending in the fall of 1935. It was found that good egg production was essential in securing a good labor income, although there were some flocks that laid well but gave a low labor income, because of excessive labor costs, inefficiency in management, small size business or for other reasons. All flocks that laid less than 150 eggs per bird provided a relatively low labor income unless the operators had a special market. On a hen-day basis, the average egg production per bird among all flocks surveyed was 164 eggs, the highest being 190 and the lowest 118.

**Labor Income in Relation to Annual Egg Production**

| Average egg Production per bird | Number of flocks | Labor Income per flock |
|---|---|---|
| Under 150 ............ | 10 | $ 61 |
| 150 — 159.9 ............ | 7 | 1,203 |
| 160 — 169.9 ............ | 11 | 2,191 |
| 170 — 179.9 ............ | 9 | 1,988 |
| 180 — and over ....... | 12 | 2,656 |

The average number of eggs laid by a flock is determined by the breeding quality of the flock, relative freedom from disease, and by the feeding of well balanced diets and other methods of management. The better the bred-to-lay quality of the flock, the less the amount of culling necessary in order to maintain the flock on an efficient basis of egg production.

### 2. Controlling Pullorum

The testing of all breeding stock for pullorum disease should be an established practice on all poultry plants. Under existing conditions, this disease costs the industry many thousands of dollars through the mortality that occurs among infected chicks produced by infected breeding stock. Since the disease is readily transmitted from infected to healthy chicks, the losses sometimes amount to as

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(Poultry Tribune, April, 1939)

much as 50 per cent of the chicks started under the brooders.

The tube agglutination test and the rapid, whole-blood stained antigen test are employed for the purpose of detecting reactors among the breeding stock. In the hands of properly qualified parties, both tests are reliable, but since the reactors can be removed from the flock at the time of test when the rapid, whole-blood, stained antigen test is employed, it is recommended as being the more practical test.

### 3. Reducing Flock Mortality

It is of little avail to secure high egg production, if one-third or one-half of the laying pullets die early in their first laying year. The number of laying flocks that are practically wiped out because of disease occurs with increasing frequency each successive year. To the individual flock owner, the loss of his flock is a tragedy, but what makes the disease still more serious is the fact that mortality occurring annually among all flocks has shown an upward trend during the past few years. Not only is the economic loss from dead hens very great, but, in addition, there should also be counted the loss resulting from retarded laying, poorly finished market birds and lowered egg production among the survivors.

With the ever increasing spread of disease, the soil, the water, and even the air become more thoroughly contaminated, so that more birds become infested with parasites and infected with disease organisms to give rise to still more widespread dissemination of internal parasites and diseases of various kinds. It is obvious that chickens must be hardy and possess strong constitutions to withstand the constant attacks of the enemy.

Poultrymen should put into practice a much more rigid sanitation program than ever dreamed of by most of them. Even then, there will be plenty of mortality due to internal parasites and disease organisms. Thoroughly clean houses properly disinfected, clean soil and a good grass range with access to sunlight are prerequisites for reducing laying flock mortality to the minimum.

The selection of breeding stock on the basis of vigor and livability is also necessary, if laying stock mortality is to be reduced materially. Strains of breeding stock that are resistant to disease must be developed by selecting as breeders those birds belonging to families having low pullet mortality as compared with other families.

### 4. Insulate Laying Houses

The proper insulation of the walls and roofs of poultry houses is extremely important from several standpoints.

First, in cold weather, heat is conserved so that the birds require less feed and are kept more comfortable.

Second, in hot weather, the inside temperature is considerably cooler, thus keeping the birds in greater comfort.

Third, the house temperature varies less from day to day than in an uninsulated house, thus promoting better growth in chickens and egg production in hens.

Fourth, insulation establishes a greater difference in temperature between the inside and outside of the house, thus promoting better circulation of inside air and better ventilation, and a drier house than when there is no insulation.

### 5. Practice Efficient Feeding

Since feed costs amount to approximately 60 per cent of the total cost of producing eggs, it is obvious that if the greatest possible returns are to be secured from egg production, the laying flock must be fed a well balanced diet.

### 6. Preserving Quality in Eggs

Producers should do everything possible to prevent deterioration in quality from the time the eggs are laid. This means frequent gatherings from clean nests, and storing the high quality fresh-laid eggs under the best possible conditions. The temperature of the holding room should be approximately 55 degrees, and the relative humidity of the atmosphere of the egg holding room should be 70 per cent or higher.

### 7. Marketing Better Poultry

The palatability of poultry meat is a deciding factor in determining its demand by consumers and the price they are willing to pay. Under existing conditions, entirely too much thin and scrawny poultry is sent to the packing houses or directly to market. Birds that are heavily infested with parasites and sometimes diseased birds are sold for market purposes. This is a practice that lowers the average price of all poultry.

The quality of dressed poultry offered to consumers is determined very largely by the quality of the birds before being killed, and by the methods employed in killing, dressing, and cooling. Dressed birds of superior quality are well fleshed and have plump breasts, as well as a fine finished appearance. The keel should be perfectly straight, and in the case of roasters, the spur should be only partially developed. The carcass should be free of any blemish or defect, such as torn skins and bruises. Since dressed poultry of superior quality can only be secured from live birds that are in the best of condition, it is imperative that producers should do everything possible in the way of feeding and management to produce market birds of the greatest value.

Selecting breeding stock on the basis of meat-producing quality should be combined with egg-laying ability. All breeders should have good width of body in relation to length.

### 8. Keeping a Poultry Flock Budget

It is just as important for a poultry raiser to keep a budget on his poultry flock as it is for a housewife to keep a kitchen budget, if she is going to feed the family most wisely and most economically. The poultryman must keep records of feed consumption, body weight, amount of labor involved in caring for the flock, as well as other expenses, if he is going to be well-informed concerning the cost of his poultry enterprise.

Furthermore, it will be impossible for him to make sure that he is securing a reasonable labor income over expenses, if he does not keep a record of the prices he receives for his eggs, his various classes of poultry meat, and other salable products. A complete but simple record system is imperative, if the poultry raiser is to know exactly where he stands. Without some kind of a record system, it is impossible for him to determine whether or not his poultry enterprise is a losing or a paying venture.

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❡ AN AUSTRALIAN inventor has developed a meter which fastens on to a hen to stamp automatically the date and name of the hen on each egg laid.
—Utah Poultry Co-operator, April, 1939.

*The New Federal Research Laboratory*
*is Ready for Use and . . .*

# The Fight is On!

By Don Turnbull

***Condensed from Poultry Supply Dealer***

THOUSANDS upon thousands of hatching eggs were placed in incubators during March, but probably none will be as anxiously watched or will mean more to the poultry industry than a small "set" of 1,000 eggs at the new federal regional research poultry laboratory at Michigan State College.

This set, along with nine others of similar size following at regular weekly intervals, will form the nucleus for investigations through which science hopes to find the cause of fowl paralysis.

Research, perhaps the greatest concentrated effort of its kind in the history of the present day poultry industry, has started at the laboratory constructed on grounds donated by Michigan State College at East Lansing, Michigan.

Since early in the year, Dr. J. Holmes Martin, director of the laboratory, and many nationally known poultry scientists have been planning a line of attack.

### Science Tackles Fowl Paralysis

Science virtually will be working behind closed doors from which it will not emerge until a satisfactory solution to the problems of fowl paralysis has been obtained. When this will be, no one can say. Important results are not expected before three years. There is skepticism about even that time limit. It might be 8, 10 or even 20 years. Of course, there is always the possibility of a lucky break; many of the greatest scientific developments of the world have been discovered by chance.

### Quarantine Incubator Room

Only one man is to have regular access to the incubator room. He is Dr. N. F. Waters, senior geneticist at the laboratory. As each department in the huge experimental plant is placed into use it will be quarantined from the outside world. In fact, so rigid will be the quarantine that the personnel of any one department will not be permitted to trespass on grounds allotted to other departments.

According to the plan of attack devised by the experts, genetics and pathology are to be stressed in initial experimental work. Management and nutrition also will get consideration.

The laboratory is situated on a 50-acre plot of ground which comprises the southwest corner of the campus of Michigan State College. Along the southern edge of the grounds, and to the center of the plot has been erected a three-story brick building. This is the administration building. It houses the records, general meeting room, offices and main laboratories. It is here that laboratory technique will be worked out.

The building is the last word in laboratory design. The chemistry laboratory, for example, is equipped with spark-proof electric switches as a guard against possible causes of explosion. It is virtually bomb proof in this respect.

On each side of the administration building and about 100 yards away are located two brooder houses and two isolation wards.

Two laying houses are under construction. Everything involving birds is to be done in duplicate. Also to be constructed are a feed storage building, a water tank and an incinerator. The 50 acres of ground are to be tightly fenced, and there also will be a fence around each building.

The idea is to have the same type of buildings on one side of the administration building as on the other. The group on the west side will be devoted to genetic control; the other to pathology.

The eggs referred to previously were placed in an incubator in the main building. There were 1,000 in the first set, but a total of 10,000 will be set this year. Ten strains are represented.

Each hatch will be divided into two groups. One group of chicks will be placed in the brooder house to the east and will be inoculated with fowl leukosis or paralysis material. The other half will be placed in the genetics control building.

As the inoculated birds contract disease, they will be "posted." Inoculated birds which apparently have been able to resist paralysis and are, therefore, to be considered immune will be placed in the mating house. The hope is to breed from this group a strain that is highly resistant to fowl paralysis.

The genetics problem is to find a strain that is highly resistant and one that is highly susceptible to fowl paralysis.

Birds that are to be more closely observed than others will be placed in isolation wards which virtually are laboratories in their own right. There are laboratory tables right in the wards. A special ventilating system will insure fresh air at all times.

### Emphasis on Sanitation

Sanitation will be carried to the "nth" degree. The interior of the brooder houses and isolation wards are models of cleanliness. Steam heat, controlled ventilation and humidity, specially constructed drainage systems, which allow systematic flushing of the houses, are just a few of the details. Water pipes, instead of being attached to walls, have been placed underneath the floors of the hallways, with a movable iron ramp as the floor above them, permitting easy inspection. This same trough which holds the pipes also acts as a part of the drainage system.

The center of each of the houses contains a huge vat into which equipment can be tossed for disinfecting. Equipment storage space is overhead.

A bird which is to be removed from the houses to the main laboratory for "posting" will be placed in a waxed paper bag which in turn will be deposited in a metal pail with a tightly closed lid. The bird will thus be transported to the laboratory in the main building, entering it via an outside entrance which leads direct to the room. After the work of posting is completed and results tabulated, it will be transferred to the incinerator, there to be burned so that not a trace of disease will be left to threaten other birds.

The pail or can in which the bird was transported, will be disinfected and returned to the proper ward.

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(Poultry Supply Dealer, April, 1939)

### To Post All Birds

Every bird that dies will be posted, no matter what the cause of death. Every rodent caught on the place also will be taken to the laboratory. Pheasants, which swarm over that section of Michigan, will be posted whenever one is caught on the laboratory premises. Every other bird and animal which dies on the laboratory grounds will receive the same treatment. The idea is to see if there is any possible chance that these might be responsible for transmission of fowl paralysis.

Each worker in the inoculation house will be assigned rubber clothing. Each suit must be disinfected after use and can be used only once between disinfections. A worker passing from one isolation ward to another must change suits.

By the time the first hatch is off, the entire laboratory facilities will be under quarantine. Visitors can enter the offices of the main administration building, but they will be allowed no further. Even officials from Washington will not be allowed to roam over the laboratory facilities at will. If and when they visit the plant, they must follow the directions of the scientists and don the rubber suits as they inspect the plant.

### Dr. Martin Directs Work

The personnel of the laboratory at present consists of Dr. J. Holmes Martin, its director, who came to the laboratory from the University of Kentucky; Dr. N. F. Waters, senior geneticist, from Iowa State College, and Dr. C. A. Brandly, from the University of Illinois, where he was associate chief of animal pathology, and former pathologist, Illinois Department of Agriculture.

In addition, there is a plant foreman and electrician. A number of assistants are to be appointed later. All appointments will be made by civil service examinations.

Dr. Martin is to have full control over research. Government red tape will be at a minimum. Nine nationally known poultry scientists have been named to act in the capacity of an advisory committee to guide work. The work at the laboratory is to be collaborated with that at the 25 experiment stations within the Northeastern and North Central areas. Results obtained at the colleges will be made available to the regional laboratory and vice versa.

### Name Advisory Committee

The advisory committee includes three pathologists, Dr. E. L. Jungherr, Storrs, Conn.; Dr. A. J. Durant, Columbia, Mo., and Dr. C. D. Lee, Ames, Iowa. The three geneticists are Dr. F. B. Hutt, Ithaca, N. Y.; Dr. F. A. Hays, Amherst, Mass., and Dr. R. G. Jaap, Stillwater, Okla. In poultry management the men named are Dr. L. E. Card, Urbana, Ill.; Prof. J. G. Halpin, Madison, Wis., and Prof. H. C. Knandel, State College, Pa.

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❡❡ "EGG-NOG FED" baby beef! That's the latest farm wrinkle at Hurd, N. D. Because eggs bring only about 11 cents a dozen, A. W. Ellsworth, dairy farmer, is going the "milk-fed" standard one better, and gives his calves egg nog.

With more than 200 chickens providing a surplus of eggs, Ellsworth uses four to five dozens a day, mixed with milk, as part of the ration for his 24 calves.

—Newspaper Article.

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# One Year of Boosting Eggs

By Homer I. Huntington

Executive Manager, New England Fresh Egg Institute

*Condensed from Everybodys Poultry Magazine*

WE in the poultry business began to find ourselves during 1937. In that year there was a general awakening among poultry leaders to the fact that something was the matter with the industry. An analysis of the situation revealed three factors over which producers had no control:

1. Two years of drought caused a shortage of grains which tended to boost feed prices.
2. Mild winters were partly responsible for accelerating egg production, causing still lower egg prices.
3. Low consumer-buying power, among other things, prevented the purchase of these high quality fresh eggs even at existing low prices.

Perhaps these conditions over which the industry had little control—any one of which alone was important enough to cause grave concern—were a blessing in disguise. The poultry industry actually required three terrific shocks to bring it to its senses. Suddenly we became conscious of the fact that increased consumer demand must accompany an increase in egg production.

Nothing new, because competing food commodity groups recognized this long ago. Herein lay a practical solution to the difficult problem of poultry farm relief — to organize a campaign to tell consumers that eggs are one of the most valuable foods; that their nutritional value is exceptionally high; that their health-giving benefits are many; and that they are classed close to the top in the list of essential protective foods.

How to organize and finance such a program required considerable thought. Should the program be national or regional in scope? Could it be financed by producers, already depressed by low profits, or should it be subsidized by allied industries? Such problems were hard to solve by poultrymen organized only as small state units.

The state egg publicity committees which were appointed during the emergency nation-wide campaign launched by the National Association of Food Chains and the National Poultry Producers Federation, to move eggs into consumption, offered a solution to the problem of organization. A regional set-up under the leadership of the Northeastern Poultry Producers Council looked promising. However, plans were frustrated because of the lack of support from several states.

### Feed Men Lend Help

New England poultrymen were adverse to allowing the plan to die. Therefore, poultrymen were asked to contribute to their state committees at the rate of ½-cent per bird to finance an educational campaign. Responses were fairly encouraging, but not enough to insure an effective program. An appeal for financial assistance was made to feed manufacturers. Such assistance on the part of a few manufacturers was pledged, and in March 1938, the New England Fresh Egg Institute was formed: a

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(Everybodys Poultry Magazine, May, 1939)

producer-controlled organization financed by poultrymen and a few sympathetic feed concerns.

The purposes of the Institute are to collect and disseminate information relative to the food value, health value and downright goodness of fresh eggs when used alone or in combination with other foods and to foster an adequate and satisfactory supply of fresh eggs for New England at all seasons of the year and to encourage and promote otherwise a sound poultry industry.

Two important factors made it possible for the Institute to launch its educational campaign immediately, (1) quality eggs in New England were abundant and (2) they were available for distribution because of 12 well-established cooperative marketing agencies.

Immediately after appointing an advisory board, consisting of the presidents of the state poultry associations, chairmen of the egg publicity committees, and a counsel of advertising and marketing specialists, the Institute went to work to devote its entire program to consumer and producer education.

### First Job to Build Quality

What has the Institute done during its first year? Realizing that no consumption program could be carried on effectively without having the wholehearted support of the industry, the Institute devoted much of its time trying to build up industry consciousness and interest in fresh eggs. By industry, we wisely included poultry producers, hatcherymen, marketing organizations, feed and equipment manufacturers, extension services, educational departments, departments of agriculture, bureaus of markets, the poultry press and various publicity agencies such as the agricultural radio and news services—all agencies directly or indirectly interested in the welfare of the poultry industry. To be prosperous, an industry must create a consumer demand for the products it manufactures.

But before that consumer demand can be created, the industry itself must be fully aware of the merits of the products it offers to the public. Too long fresh eggs have been merely taken for granted — they were never really sold—they were just handled. The industry, too busy in producing eggs, forgot that there were protective vitamins and minerals in eggs which consumers need, but about which they know very little.

The Institute recognized this and tackled its first job—that of creating and printing an attractive, educational hand-book on eggs, designed for both producer and consumer. After six weeks time the first 10,000 copies of our first publication entitled "What You Should Know About Eggs" came off the press. By radio, press, and letter this booklet was announced to New England and almost overnight the supply was exhausted. One hundred and twenty thousand copies have now been distributed almost entirely in New England — although copies have been sent to nearly every one of our 48 states, as well as to 12 foreign countries.

### Summer Egg Receipes Distributed

Realizing the importance of keeping our consumers egg-conscious in the summer time when cool dishes are in demand, the Institute printed and distributed 300,000 carton inserts featuring egg-salad and egg-drink recipes. These leaflets together with the egg booklets were distributed at food shows and fairs where the Institute, in cooperation with the state bureaus of markets, set up educational exhibits. Egg quality and egg grades have long been featured at food shows and fairs, but little had been done on stressing the food value of eggs from the consumer viewpoint.

The Institute cooperated with all six extension services during the summer in featuring consumer programs along with the regular educational and scientific meetings held at the colleges.

### Signs Supplied to Drug Stores

The first Chain Drug Store Egg Drive throughout New England was a decided success. Several meetings were held in our larger cities with soda fountain managers and executives to instruct clerks how they can sell more eggs and eventually earn more money for themselves. This campaign popularized the 'Pep Cocktail' and fresh eggs found their rightful place on the soda fountain counter ever since. The Institute printed and distributed to all druggists in four New England states, 30,000 back bar egg signs.

### Blotters for School Children

With the return of Fall and school, there came the usual demand for blotters, so the Institute printed and distributed, mainly through its contributors, 50,000 attractive egg blotters featuring the picture of two delicious poached eggs on toast and the words "Eggs for Health, Economy and Good Taste."

To close the calendar year, the Institute offered its contributors egg calendars of unusual design, to distribute to consumers as a reminder that eggs are in season every day of the year. Eighteen thousand egg calendars, we hope, are hanging in as many homes.

Over one-half million pieces of educational literature, created and printed by the Institute and financed by liberal contributions from one of our allied manufacturers, were distributed during the Institute's first year.

### Egg Movie in Demand

Cooperation from educational and regulatory state departments has been outstanding. The Massachusetts Extension Service and State Department of Agriculture prepared and produced our movie film "Give the Fresh Egg a Break," which definitely helped to add color, interest, and variety in our consumer meetings. Two copies of this film have been in constant demand throughout New England.

### Window Displays Bring Increase

Egg shows in the past have been designed largely for producers and cooperatives. No competitive egg shows have ever included classes for storekeepers. Jules Kroeck of the Massachusetts Department of Agriculture recognized that there is a definite place for these storekeepers in egg shows. Competition of this sort brings the producers, dealers, and storekeepers closer together, which results in a better understanding of a common problem, namely to increase the consumption of eggs. With the Institute cooperating with other departments of agriculture, several cities in New England saw for the first time, fresh eggs attractively displayed in store windows. Sales increased up to 300 per cent.

The question may be asked even by our own New England poultrymen—"Why the Fresh Egg Institute?" Perhaps the best answer is found in the statement of Dr. E. V. McCollum in an address before the National Dairy Council.

Dr. McCollum said, "It is a self-evident fact, in the light of what we all know about present-day promotion of doctored foods and vitamin preparations, that constant vigilance and sustained instruction will be necessary in order to prevent great confusion arising in the minds of food consumers as to what they should buy and eat. Those industries which provide the nation with its 'protective foods,' . . . . . . . must support the necessary enterprise of keeping these facts before the women of the land. . . Each of the food industries should, however, continually support an educational organization which presents honestly and fairly the knowledge which we possess concerning the properties of all the foods which we grow and which are combined into our daily menus. Only by such means will the health of the nation be safeguarded."

Some poultrymen measure results only in terms of "How much more am I getting for my eggs because of the Institute?" We may rightfully ask, knowing from government statistics that bird population and egg production is on the increase, "How much lower would egg prices have gone without the Institute's consumer educational work?"

The New England Fresh Egg Institute has become well known throughout the New England area and beyond. It has, unquestionably, created increased interest in, and a better knowledge of, fresh eggs on the part of the New England consumers, and it has, likewise, made the New England egg producers, themselves, more "egg-conscious."

## *President Roosevelt Enjoys Eggs*

Word has recently been received from Washington that President Roosevelt is extremely fond of eggs.

His favorite recipe uses six eggs with one teaspoonful of butter, three tablespoons of cream, milk or water.

The butter is melted and the eggs are beaten until the whites and yolks are thoroughly mixed. The liquid is then added and the entire portion is poured into a hot frying pan, and the eggs stirred until the proper consistency is reached.

No doubt you have a favorite way of scrambling eggs, and in case you have been a little negligent in eating your quota of eggs, may we suggest that you follow the example set by President Roosevelt and help reduce the surplus by boosting your own consumption of eggs.

—International Baby Chick News, April 1, 1939.

❝ "BRIKS"—an egg-dish—is very popular in Tunisia. Here is the recipe: A raw-egg is dropped on a square of pastry-dough. The dough is folded diaperwise over the raw eggs, and then the whole is French-fried. The eater pinches two corners of the pastry in his fingers, and nibbles cautiously on the "Briks," until he is sure the egg-yolk, when broken, will run only into his mouth, if the yolk has not been cooked too hard.

—Poultry Tribune, May, 1939.

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# Eggs in the Feed Store?

*Condensed from Feedstuffs*

THE egg trade in many communities can logically be handled by one or more feed stores. In an occasional spot, we find a feed merchant alive to his opportunity. With intelligent management, his egg department accounts for a substantial part of his annual profit. There are many feed merchants in a position to take up this profitable companion line.

### Capital Required Not Excessive

Capital required is not excessive. Of course, if a dealer chooses to try a cold storage enterprise on his own, he quickly enters a realm of finance and potential losses, as well as gains. We are not discussing storage principles, but eggs bought from producers for immediate sale. The merchant pays the egg producer cash, or gives credit on a feed account; turns about and sells for cash if he is dealing with Omaha, Cleveland, Denver, or other produce markets. If he becomes an egg wholesaler, as when he distributes eggs to groceries and markets, he will operate on a credit or cash basis, depending on individual circumstances.

Under typical conditions, capital will turn rapidly. Nor is more than nominal investment in equipment and facilities called for. It will cost the dealer little to install an "egg room," equip himself to candle and grade eggs with expert care and skill.

### Why a Logical Move

The department is logical for a variety of reasons. Egg producers are the feed store's actual and potential customers. Buying eggs, the merchant practices a form of reciprocity. If he can satisfy a poultry keeper with feed credit, he can probably satisfy that same party with egg-buying service. As an egg-buyer, he will have contacts with producers, buying their feed needs elsewhere. And out of such contacts, he will secure feed customers.

Handling the eggs of producers, he will get an inside view of their operations. At all times, he will have first hand knowledge of the impact of the egg market on producers. He will have contacts with men whose "egg crop" is large, and with others whom he has helped in solving feed problems.

The feed business in its nature tends to equip a merchant to handle eggs. The feed dealer is constantly dealing with fluctuating prices. The egg market is a thing of constant fluctuation, too. The merchant has had the background of experiences that fit him to master the technique of dealing with egg market fluctuations.

In a great many small communities, the feed dealer is better fitted than anyone else to become the egg-buying center for the local territory. The department can become not a "necessary evil," but something in the growth of which he takes great interest. He is in a position to become a local egg wholesaler. Perhaps already he wholesales flour to retail stores; in that case, there are retail outlets which he can quickly line up for eggs.

Counters an objector — "Do you know what it is to ship 30 cases of eggs and get a bulk price, 4¢ below what you paid? It's such losses that ruin the egg business." There is nothing rare about such happenings. The other day an experienced egg-shipper, a feed dealer who has made money

The Miller Publishing Co., Minneapolis, Minn.
(Feedstuffs, Feb. 18, 1939)

for 10 years with the department, related details of a stiff loss he had taken the day before. Truckers suddenly turning attention to his market, somewhat out of line with midwest cities, had arrived unexpectedly with supplies that had sent local prices tumbling.

### Speculation Ruled Out

Buying eggs for immediate sale is not like storing grain purchases in expectation of a speculative gain. The feed dealer has a number of conditions to minimize risk. He can plan to ship frequently during the month, when a declining price is the normal expectation: and possible declines will enter his computations in arriving at his buying price. He can capitalize long distance telephone, instead. If he will resist the temptation to speculate in eggs, and will follow a policy to return him a consistent fair profit for his service, he will find unexpected gains will cancel out losses in the 12 months of the year, in such degree that satisfactory profit will remain from the general operation.

"Why should I take on eggs, when every grocer in town buys them?" This question merits a detailed reply, for right here perhaps is the major reason why feed stores have an egg-trade problem.

### Grocer Careless with Eggs

Until states came along with regulatory candling and grading laws, grocers were notorious in their slipshod handling of eggs. In spite of laws, a great many grocers continue careless. The grocer is an "amateur" egg-buyer and shipper. He buys the bulk of his egg supplies, when egg-buying is policy, from his customers, paying for them in trade. Sometimes he has a cash and a trade price, trade naturally enjoying a sizeable differential. His supplies naturally fluctuate a good deal. In time of plentiful offerings, he is disposed to cut his buying price, putting him in better position to profit on his shipments. When supplies are scarce, he may offer 2 or 3 cents above the market in order to get needed stock, then immediately lowering his price. On his shipping operations, he naturally averages to fare much less favorably than the expert shipper (feed store, or other business making a specialty of eggs).

Said a feed dealer in a farming town:

"The grocers here easily lost $2,000 last year on their egg shipments. That isn't anything at all unusual. The four or five grocers who look to us for their eggs had no shipping losses and made a merchandising profit straight through the year. They were relieved of the nuisance of candling eggs, discarding the "cracks" and "bloods."

Grocers who buy eggs from producers are following an archaic system.

"The local stores we wholesale to wouldn't think of changing back to the old system. We candle the eggs, and package them. Ordinarily, the margin we work on is 4¢. If we paid 18¢, we sell to the grocer for 22¢. We take the loss, of course, on discarded eggs. The grocer turns about and adds the margin which he finds in competition is about right. This may run anywhere from 2¢ to 4 and 5¢ a dozen.

"My observation is that the system of egg-buying by grocers and markets is gradually breaking down. An occasional small city has largely changed to the new basis, in the last few years."

### Better for Producers and Consumers

The feed dealer should adopt the principle that, while grocers may be

buying a high proportion of eggs produced in the local territory, the fact remains that the system is an inefficient one, from the standpoint of grocers themselves, producers, and consumers. The expert handling of the "egg crop" means that producers receive at all times what market conditions warrant; grocers sell on a reasonable margin, eliminating the present speculative condition; and consumers are assured at all times of candled and graded eggs at a reasonable margin over distribution costs.

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## *Those Strange Mexican Eggs*

There is a story going around, that Frank Dumser of Seib's Hatchery, Lincoln, Ill., isn't so enthusiastic about "eat more egg campaigns."

"Oh, they are all right in the United States," Dumser asserts, "but in Mexico—thumbs down!"

All of which might seem to indicate that Dumser is prejudiced against Mexican eggs.

The story goes that last summer, the Dumsers in company with our good friends, Mr. and Mrs. George Hamp, Standard Hatcheries, Decatur, Ill., journeyed to Old Mexico.

For a week or so, they reveled in Mexican scenery and adventured in Mexican cooking—tortada, carne de vaca, torillas and torrijas—they tried them all. That is they all did but Dumser.

"No foreign conglomerations for me," he declared, "I'll stick to bacon and eggs."

But Dumser found he didn't care so much for Mexican eggs.

"They taste so funny," he complained to the guide. And always the guide would smile—a queer noncommittal Mona Lisa smile—that disturbed Dumser more than his queer tasting egg diet.

Between meals he found himself worrying about it. Eggs shouldn't taste like that, and why, in the heck, when he mentioned it did that guide always smile so darned queer?

A hundred miles from Mexico City, the Dumser party stopped at an isolated oil station. For miles around all one could see was sage brush, cactus and buzzards—hundreds of buzzards. So thick they were the natives kicked them aside with their feet when they walked.

On the brush covered hillside, an old Mexican woman was peering among the grass. Occasionally she would stoop, pick up something and carefully place it in the basket.

"What is she doing?" Dumser asked the guide.

"Gathering eggs," was the nonchalant answer.

Dumser looked around expectantly. Here was a magnificient opportunity to study poultry raising on Mexican soil. Pick up a few tips maybe. But he couldn't see any poultry houses. Nor chickens. Funny, but all one could see was buzzards, huge, sinister, carnivorous buzzards.

"Where do they keep their chickens?" he asked finally.

The guide shrugged his shoulder.

"The 'servidora' is gathering buzzard eggs," he informed the astonished American, and again he smiled that disturbing Mona Lisa smile.

But this time the smile didn't worry Dumser, for he was too busy trying to remember how many Mexican eggs he had eaten.

—Mrs. R. V. Jared in Hatchery Tribune, Mount Morris, Ill., April, 1939.

# Unusual Ovarian Activity in a Barred Plymouth Rock Pullet

By C. E. Lee
Beacon Milling Company, Cayuga, N. Y.

*Reprinted from U. S. Egg and Poultry Magazine*

NEARLY every poultryman who has trapnested any considerable number of fowls has found cases of a hen laying two eggs in one day. Some birds are known to have done so more than once. With any such trapnest records, however, there may be some uncertainty about the performance because trapnests sometimes fail to close and two hens may use the same nest though only one be found in it.

No such doubt can becloud the record when the fowls are confined in modern individual laying cages, where the eggs cannot possibly be found anywhere else than in front of the hen that lays them. The object of this report is to present what appears to be an unprecedented record of ovarian activity made in one of the laying cages at the Beacon Poultry Research Farm, Cayuga, New York.

The pullet in question, a Barred Plymouth Rock was hatched on February 1, 1938, reared with routine care on grass range and put in the laying cages as No. 35 on June 17, 1938. Her first egg was laid on June 26, when she was 146 days of age. The subsequent record to September 30 is shown below. On September 29, the bird was injured by a fall after being photographed, and when death seemed imminent she was destroyed on October 3.

The unique nature of the record is emphasized by the following summary:

| | Days with 2 eggs Number | Eggs per day Average |
|---|---|---|
| June (5 days) | none | 0.80 |
| July | 2 | 0.97 |
| August | 9 | 1.23 |
| September | 14 | 1.40 |

It is evident that the rate of production had increased steadily during the 97-day laying period preceding the accident. However, since the average daily production during the last half of September (1.2 eggs) was less than in the first half of that month (1.6 eggs) it is unlikely that the rate of production would have gone any higher if laying had not been interrupted by the accident.

Egg weights were not recorded throughout the laying period, but in September No. 35's eggs weighed 22 to 23 ounces per dozen.

### Post-mortem Findings

When the bird was on the verge of death, it was taken for examination to Professor F. B. Hutt of Cornell University who reported as follows:

"Death apparently resulted from complications associated with a fractured femur. The left ovary and oviduct were both quite normal except that the ovary may have had more large ova filled with yolk than usual. There was no sign of a right ovary or oviduct. Histological examination of sections from the ovary revealed no multi-ovular follicles, but only the normal condition."

Institute of American Poultry Industries, 110 N. Franklin St., Chicago, Ill.
(The U. S. Egg & Poultry Magazine, March, 1939)

### Rapid Ripening of Ova

Obviously all eggs came from the same ovary. The absence of follicles with more than one ovum indicates that two eggs in one day did not result from rupture of a follicle enclosing two ova, but rather from the "ripening" or maturing of two ova within 24 hours, and probably within 12 hours. With such a rapid rate of ovulation it might be expected that when two eggs were released within a short period they would be subnormal in size, but this was not the case. When two eggs were laid on one day they were not noticeably smaller than single eggs of the same bird. Since No. 35 came from a flock in which no trapnesting or pedigree breeding was done it seems unlikely that her phenomenal record can be attributed to special breeding. It may possibly have resulted from an excessive production of the gonadotropic hormone of the pituitary, but further speculation on that point is unprofitable.

The production of two eggs in one day is probably somewhat related to the laying of double-yolked eggs. In the latter case the two ova are either ovulated simultaneously or within a period so short that the two come together in the oviduct. A longer interval between ovulation would cause formation of two separate eggs. However, although some pullets in the early stages of production lay more double-yolked eggs than others, it is usual for several to be laid on consecutive days. No. 35 had one series of four consecutive two-egg days in August and another of three such days in September.

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## *Aluminum Foil Keeps Egg Room Cool*

Aluminum foil insulation has proved helpful in keeping cool the egg room at Rhode Island State College's poultry plant. This egg room is a corner of the incubation cellar, with two walls foundation and the other two partitions with shavings between the studs. On extremely hot days it was impossible to keep the temperature at or below 69 degrees Fahrenheit.

Sometimes it was necessary to place ice in the room and direct an electric fan over the ice in an effort to reduce the temperature. This practice was eliminated after the outside of the partition walls was covered with aluminum foil. Since then, the temperature within the room has been quite satisfactory for holding eggs.

—Everybodys Poultry Magazine, May, 1939.

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¶¶ WHEN the Rev. Herman J. Lammers found that the county high school in Frederickstown, Ky., had a basketball court with a concrete floor, he called the youths out to solicit chickens from nearby farmers. The boys brought back four truck loads of chickens, which, sold at Louisville, furnished enough money to build a wood basketball floor.

# POULTRY RESEARCH

## New Form of Coccidiosis

A new form of coccidiosis is reported in the Cornell Veterinarian (Vol. 28, No. 4) by P. P. Levine of the New York State Veterinary College. This new coccidium, Eimeria Hagani, differs from other species by the important fact that its entire life cycle takes place in the intestines of the chicken. Birds resistant against other coccidia are not necessarily immune to this new species. Infected birds usually show normal hemorrhagic spots, pin-head in size, in the wall of the duodenum and intestines. Severe cases result in a catarrhal enteritis accompanied by mucous casts. It is not known whether the usually recommended control measures are effective against this new form of coccidiosis.

—Carl H. Schroeder, Everybodys Poultry Magazine, May, 1939.

## Feeding Sulphur to Protect Chicks Against Coccidiosis

In trials made at the Pomona (California) Poultry Demonstration Plant by E. M. Dickinson and R. H. Scofield, reported in The Eggsaminer, March, 1939, chicks fed flowers of sulphur before and after being inoculated with heavy doses of coccidia of cecal or of intestinal coccidiosis had marked protection against cecal coccidiosis, but none against intestinal coccidiosis. Chicks reared in pens contaminated with coccidia causing cecal and intestinal coccidiosis suffered from coccidiosis to about the same extent whether or not they were fed sulphur.

Continuous sulphur feeding retarded growth and, when 5 per cent sulphur was fed, total mortality was higher than among chicks in the control group receiving no sulphur. The investigators concluded that sulphur-feeding cannot yet be substituted for sanitation in the control of coccidiosis on poultry farms.

## Coccidiosis Not Transmitted on Shell

Is coccidiosis passed on to the chick on the hatching eggs? This question has been studied by C. C. Ellis of the New York State Veterinary College. Recording his findings in the Cornell Veterinarian, (Vol. 28, No. 4) he reports that under conditions approximating those of normal egg incubation the life of the coccidium of the species studied (tenella) does not extend beyond one or two days. Fertile eggs contaminated with coccidia, hatched normally and no evidence of infection could be found in the chicks.

—Carl H. Schroeder, Everybodys Poultry Magazine, May, 1939.

## English Observations on Fowl Paralysis

Experimental work on fowl paralysis and its relation with parasitic infestations, conducted by Ernest Gray, of the East Anglian Institute of Agriculture, Essex, England, was described in Feathered World, April, 1939.

In 58 paralyzed birds examined, 49 (84 per cent) were infested with coccidiosis; five others were infested with tapeworms; three with roundworms; and one had nephritis. Gray found that birds could suffer from paralysis and make complete recovery. Often the symptoms of paralysis had not appeared during life, but at post mortem the nerves showed signs of previous inflammation.

The occurrence of paralysis was found also to be seasonal. The greatest number of cases of true paralysis were received in the late spring and early summer. In field examinations, paralysis was repeatedly found to be associated with coccidiosis.

In attempts to produce paralysis artificially, three-months old pullets known to be free of paralysis were obtained. Birds in one group were fed on wet mash and grain, the wet mash containing cultures of organisms isolated from the nerve trunks of paralyzed birds. After three months, no paralysis appeared and no lymphomatosis was present at post mortem.

A second pen was then fed on parasitic eggs and oocysts, but again no symptoms of paralysis or lymphomatosis appeared.

The third pen received in their mash and drinking water worm eggs, coccidial oocysts and cultures of the original organisms isolated. After several weeks, one bird suddenly went down with paralysis of both legs and died a few hours later. At post mortem, the nerves were found to be inflamed, coccoid organisms were isolated, and a lymphoid tumor was found in the ovary. The experiments will be repeated on a larger scale.

## Treatment of Infectious Sinusitis of Turkeys

In field trials, in which approximately 1500 birds were used, treatment of infectious sinusitis of turkeys by E. M. Dickinson and W. R. Hinshaw, University of California, reported in The Eggsaminer, March, 1939, was found to be both highly effective and practical. Exudate was removed from swollen sinuses of the birds by means of a hypodermic syringe and then 1 cc of a 15 per cent solution of argyrol or of a 4 per cent solution of silver nitrate was injected. A second treatment was given birds that did not recover within 10 to 14 days. Some birds needed a third treatment. Practically all treated birds recovered.

Treatment of infectious coryza of chickens with argyrol by the same method was ineffective in tests conducted by E. M. Dickinson and J. R. Beach, University of California.

## Use of Iodine for Gapeworms in Pheasants

The use of iodine vermicide diluted according to the directions for internal medication, used by placing a few drops in the trachea with a pipette or eyedropper, proved successful in curing pheasants severely infected with gapeworms, according to J. P. Delaplane and H. O. Stuart, Rhode Island Agricultural Experiment Station, and reported in Journal of American Veterinary Medical Association, May, 1939. Symptoms of respiratory distress caused by the gapeworms, disappeared four or five days after the pheasants were treated.

## Dragonflies Host to Worms Harmful to Turkeys

Dragonflies were found to be responsible for the spread of a severe turkey disease in an experiment by Dr. Ralph W. Macy, College of Saint

Thomas, St. Paul, Minn., reported in Journal of American Veterinary Medical Association, May, 1939.

To determine the effects on turkeys, living cysts of a parasitic worm (Prosthogonimus macrorchis), obtained from immature dragonflies, were fed to a laying turkey hen. After six days, the hen was killed and found to have a number of these parasitic worms in its oviduct.

A second bird in production was given 20 living immature dragonflies and 12 days later 236 of the parasitic worms were found in the oviduct. A solid plug of chalk-gray material, nine inches long, was found clogging a large part of the oviduct. The body cavity contained large cream-colored chunks of abortive egg material and much gray pus.

Three other laying turkeys fed immature dragonflies showed the same conditions after a few days. All birds ceased laying and suffered severe disturbances of the reproductive organs soon after eating the flukes.

Dr. Macy concluded that turkeys, as well as chickens, are apparently poorly adjusted to this fluke and may be considered its unnatural hosts. Turkeys eagerly devour dragonflies and should be kept some distance from lakes and other bodies of water where they are present.

## Factors Influencing Fertility in Poultry

Factors influencing fertility are still largely a subject of speculation rather than definite knowledge. Recently Dr. Generales published some valuable data which sheds considerable light on the subject. He found that the shape of the male sperms, as measured under the microscope, influences fertility. Frequent matings reduced the amount of semen. No relationship was found between the amount of semen and the number of sperms it contained per cubic unit. There are indications that at least some of these observations made by Generales in the field of human physiology are also applicable to poultry. For instance, there is some evidence that rest periods tend to increase the fertility of males, especially in the case of turkeys. (Biometric Investigation of Spermatozoa and Fertility, by Dr. K. D. J. Generales, Jr., Publ. by Ferdinand Enke, Stuttgart, Germany).

—Carl H. Schroeder, Everybodys Poultry Magazine, May, 1939.

## Prunes as Chicken Feed

Poultry scientists at the University of California, experimenting with chopped prunes to discover if off-grade prunes can be disposed of by feeding them to chickens, found that the chopped prunes used in their preliminary experiments were too coarse for baby chicks but were readily eaten by chicks four or more weeks old. The prunes were found to replace up to 5 per cent barley in the diet, but more than this amount proved too laxative on the birds.

## Green Range and Egg Quality

Recent experiments have shown that there is some falling off in egg quality during the summer months in comparison with the average quality of eggs laid from November to March. Some persons have suggested that the change is caused largely by higher air temperatures in summer, and others have thought that more liberal supplies of fresh green forage might furnish the true explanation.

A test carried out at the South Carolina Agricultural Experiment Station was designed to measure the effect of green range, as opposed to strict confinement, on interior egg quality.

A flock of pedigreed White Leghorn pullets was divided into two groups which were made as near equal as possible on the basis of egg quality measurements taken during the months of January and February. One group was kept in confinement and the other allowed access to green forage from March 1 to June 30.

On the basis of three different quality measurements, height of firm white, percentage of firm white, and yolk index, there was no demonstrable difference in interior quality of eggs laid by the two groups of hens.

—L. E. Card, Poultry Tribune, May, 1939.

## Litter Materials for Chicks

Litter materials for chicks were compared at the Philippine University. The merit of the litter was appraised on the basis of weight gains, death rate and general appearance of the chicks. Subjected to comparison were: sand, rice hulls, rice straw, shredded newspaper, wire floors and bare concrete floors. Rice hulls ranked first, followed by rice straw and by sand. Shredded newspapers had a definitely unfavorable effect.

—Carl H. Schroeder, Everybodys Poultry Magazine, May, 1939.

## Body Temperature of Young Chicks

Investigators at the Cornell Agricultural Experiment Station have reported their findings in connection with individual temperature readings on nearly 600 young chicks during the first two weeks after hatching.

There is a pronounced rise in the body temperature of the chick during the first week, amounting to more than two degrees during the first four days.

At seven and ten days of age there was a significant difference between the mean temperatures of White Leghorn and Rhode Island Red chicks, the Leghorns having the higher temperature.

No consistent relationships were found between body temperature and sex, between temperature and body weight, or between fourth and fifth day temperatures for individual chicks. Two lots of chicks were compared on the basis of daily temperatures during the first 13 days, one lot being observed from 8 to 9 p.m. and the other from 9 to 10 p.m. In every instance the temperatures recorded during the second hour were lower than those recorded during the first hour, showing that the temperature of chicks was consistently declining from 8 to 10 p.m.

—L. E. Card, Poultry Tribune, April, 1939.

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❝ BREEDING is a highly skilled game where one must figure his patience in 20-year chunks before he often gets much monetary rewards. Few breeders ever make much money. Many of them are continually only three jumps ahead of the wolf. But they are doing a most necessary service to the commercial poultry industry and it pays the poultryman every time to pay a few more cents for a chick or a pullet if it has the right kind of breeding behind it.

—Peter C. Dane, Pacific Poultryman, May, 1939.

## *Vacuum Pack Developed for Dressed Poultry*

While coffee, nut meats, French fried potatoes and various other food products have been vacuum-packed for a number of years to preserve their original freshness, vacuum-packing of poultry is a recent development.

At Cambridge, Mass., the Dewey and Almy Chemical Company has developed an odorless, tasteless, water and vapor-proof rubber container for vacuum-packing dressed poultry, meats, and other irregular-shaped foodstuffs. It may open the way for large-scale packing of full-drawn frozen poultry which many marketing authorities believe an essential step in increasing the consumption of poultry.

The rubber bags, which are available in convenient shapes adapted to the product being wrapped, are enlarged by stretching over a wide-mouthed container and drawing a vacuum around the outside, then chilling to hold the distended form. This can also be accomplished by inflating the rubber bag with a measured amount of compressed air and freezing it in its enlarged shape.

Next, the dressed bird is dropped in the open-end bag, a vacuum hose removes the air from within the bag and draws it close to its contents, and the bag is twisted and heat sealed. By quick immersion in warm water or by the application of warm air, the stretched bag thaws out, attempts to shrink to its original size, and contracts to a tight, transparent wrap that makes the bird more appealing to the eye.

Since this new wrap prevents evaporation, it makes possible safe storage for a longer period of time without loss of weight or danger of freezer burn. Frosting of refrigerator coils will be reduced because there is no moisture given off by the product, and it will cut down the loss of time for defrosting in storage plants.

From the standpoint of the housewife, this new method of packing poultry makes the bird more appetizing, because it looks more natural. She is assured, too, that it is sanitarily protected.

—Everybodys Poultry Magazine, May, 1939.

“ THE MENTION of Bourg-en-Bresse brings water to the mouth of any Frenchman, so famous is the quaint old town for its poultry and the cooking thereof.

Every year a poultry exhibition and competition is held there, a competition without its equal for the number of exhibits and the keen fight for prizes. This exhibition took place on 20th December, when the entries numbered well over 3,000 birds, all ready to be cooked and eaten.

The second day is devoted to living poultry, and at this competition as many as 20,000 birds are presented.

The natural ending to such an exhibition is the real proof of the excellence of the exhibits—the competition for the best cooked poultry. The feast is a gigantic one, and to help along the delicious poultry all sorts of wonderful dishes are eaten and wines drunk.

—The South African Poultry, Pigeon and Bird Magazine, March, 1939.

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# How I Improved My Turkey Market

By Hugo Henry

Wisconsin Turkey Grower

***Condensed from Turkey World***

REALIZING that to secure maximum returns from our turkey crop, it would be necessary to cater to a retail and special wholesale market, we set out in the early spring with this thought in mind. It is absolutely essential to start early in order to obtain these markets.

### Visitors Invited

During the summer, we invited people to inspect our flock of turkeys. To make it easy to find the farm, roadside signs were used. Due to the fact that our farm is located about one-half mile off the main highway, we were forced to use four signs. A large sign, painted on both sides, was placed at the intersection of the main highway and the side road leading to our farm. About one-half mile away from the large sign, and on each side, small signs were placed, directing the people to turn at the proper intersections. These were mainly for the purpose of slowing the people down, and to prevent them passing the intersection. The fourth sign was merely a sign with the farm name and an arrow pointing to the farm; this was placed at the entrance to our drive. In this manner, many people were attracted to the farm who would not have paid us a visit without the use of the signs. Naturally, this resulted in orders being placed.

### Got Story in Newspaper

In the fall, we were able to induce a large newspaper to run a full-length story pertaining to our turkey project. We were fortunate in having this article appear about two weeks before Thanksgiving, and in an ideal section of the paper. We also inserted a display ad in one paper at the same time an article appeared about our turkeys. These stories and ads, of course, attracted more people to the farm, resulting in more orders.

### Sold Some Birds Through Butchers

Early in the fall, we contacted high-class retail butchers and restaurants. Of the ones contacted, we sold only to two very high-class butchers and one restaurant. We would have been able to sell to more, but as we did not need them to dispose of our crop, many were overlooked. Those selected paid a premium of from 3 to 5 cents per pound.

### Best Method Was by an Agent

About the best (if not the best) method of direct selling we have used, and also the least expensive, was that of selling through an agent. We were fortunate in securing a person in Madison (most of the birds were sold in Madison, because it being the nearest town of much size) who was very familiar with the town, and knew many first-class prospects. This person was a University of Wisconsin graduate, and unfortunately, was unable to obtain a position.

Knowing most of the faculty members of the University, he set out to call them over the phone. As he had

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(Turkey World, April, 1939)

no job, he was very willing to work for a reasonable commission, and he had plenty of time to call people on the phone. He also called people picked at random from the directory. He helped us deliver the birds to the people from whom he had secured orders. This agent received 1½ to 2 cents per pound as commission. This was deducted from the dressed weight and the price of 35 and 37 cents per pound we received for all birds retailed.

The agent sold about 100 birds for Thanksgiving and about 75 more at Christmas. His Christmas orders were less due to the fact that most of the University of Wisconsin members were gone for the holidays. He sold many birds, however, to people outside of the university. Then he also sold a few for New Year's and a few scattered orders. His total sales amounted to about 200 birds. This method of selling through an agent has great possibilities, I believe. Then, too, the cost of selling is reasonable, if the proper person can be secured. We are planning on having agents in other towns next year.

### Direct Mail Brought Results

The other method of direct selling we used was through mail contacts. We had four-page folders printed; on one page was a road map of the immediate vicinity. This showed the roads used to reach the farm and the distance from the nearby cities and towns. This was to encourage people to visit the farm and to make it easy for them to find the farm. An order was printed on one page of the folder, and we wrote prices in a margin provided. The prices were in ink, and we made the folders in this manner so that the prices could be changed from year to year, if necessary. The other pages were merely advertising and selling material.

These folders were mailed to former customers, and to people picked at random from a telephone directory. We pick people living in the high-class residential districts. Return envelopes were enclosed. They were not stamped, as this would prove too expensive. We found this method has definite possibilities, and it proved quite successful.

We also discovered that if the folders are mailed for both Christmas and Thanksgiving, many people who did not order the first time will order at Christmas. We mailed only about one-half as many for Christmas, because it was apparent that we would have no trouble disposing of our birds. Of these folders sent out, about as many orders resulted from one-half as many as the total Thanksgiving orders. Of course, after mailing the folders several times to people without receiving an order, we feel that they should be taken from the mailing list, as some never would place an order. This method, I believe, will prove still more effective the second year, and we are going to use these folders again.

### Shipped Some Birds by Express

We also shipped some birds by express. These customers were secured by inducing people whom we knew in distant cities to try our birds. This resulted in new customers from these towns. About 30 birds were shipped. The birds sent by express were not drawn because we did not want them to mold or spoil during shipment. Dry ice was used in distant shipments. They were, however, attractively wrapped and labeled with our own labels which we had printed.

A few birds were also sold to a cement salesman. These were sent to the dealers who purchased from him. They were either shipped or delivered, depending upon the distance. We believe that this method of selling to large companies, salesmen, etc., has definite possibilities, and we plan to push this method to a greater extent during years to come.

### How to Develop Retail Market

To develop and hold a good retail market, one or two very essential factors are necessary. The first is producing a very high quality product, and presenting it in an attractive form. The second is rendering high quality service and filling orders as specified.

To be able to fill about all weights from 9 to 22 lbs. with prime birds, we keep two breeds, Bourbon Reds and Bronze. The Bronze dress out prime between 12 to 14 lbs. and the toms 18 to 22 lbs. The Bourbon hens dress out prime at 9 to 12 lbs., and the toms 15 to 19 lbs. In this way, we could furnish prime birds at most any weight, whereas if only one breed were kept, this would be about impossible.

Birds which dress out as seconds were sold to people who called at the farm and wanted a cheaper bird.

All the birds were dressed and drawn, and the tendons pulled, unless otherwise specified. After drawing, they were wrapped with Cellophane, and a blue tag was stapled on the wing with a stapling machine. These tags were furnished by the feed company that supplied our feed during the growing period. They also furnished little four-page folders which described the method of preparing and cooking the turkey.

These and our own folder, along with Cellophane-printed bands appropriate for the season, were placed beneath the Cellophane wrapping and around the breast. The Cellophane was then tied with Cellophane ribbons; we used tango (yellow) ribbon for Thanksgiving, because it is more appropriate; and red ribbon for the holiday orders. On the end of one of these ribbons was fastened a tag which we had printed with our name and address on it. These tags contained blanks for placing the person's name and address to whom the bird was delivered. There were also spaces provided for placing the weight of the bird, price per pound, total price, and the date wanted. These tags made delivery much easier, and it made it easy to identify the bird. When the bird was delivered, the tag was removed and handed to the customer.

We were able to dispose of our entire turkey crop without selling a single bird on the open market. Of about 925 birds, about 200 were sold by the agent, and about 225 were sold as breeders. We are keeping over about 150 breeders, and the rest were sold through our own personal contacts as described above. Of these, a few over 100, went to butchers and restaurants. We may find it necessary to dispose of a few surplus toms on the market, but I believe that I can find a restaurant which will use them, and pay us a premium for the birds.

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DUTCH duck producers on the shores of the Zuiderzee will be hit hard when the law against taking small fish by ocean-going trawlers becomes international, for they feed their ducks mainly on small fresh fish and shrimps, with mash and grain. Another law, which is hard on them, forbids consumption of duck eggs unless they have been boiled for 10 minutes.

# The Nation's Broiler Capital

*Condensed from The Southern Planter*

TWO out of every three winter broilers produced in the United States come from the Del-Mar-Va Peninsula—Delaware, the Eastern Shore of Maryland and the two Eastern Shore of Virginia counties. Indeed, that narrow leg of land extending down between the Atlantic Ocean and the Chesapeake Bay from Wilmington, Delaware, south 200 miles to Cape Charles, Virginia, has become the Nation's broiler capital.

This great chicken industry first began to attract national attention about ten years ago, when it was concentrated in an area 12 miles wide and 20 miles long around Ocean View, in the Baltimore Hundred district of southern Delaware. It has gradually spread throughout the Peninsula, bringing with it, higher incomes and better living standards for farm people, and a booming business to small town merchants. Broiler houses are springing up around Salisbury, Maryland, like mushrooms. Berlin, Maryland, has 100,000 broilers inside the city limits. The Laurel, Delaware, district is turning to broilers this winter for the first time. Chincoteague Island, Virginia, has capacity for a million chicks. Certain communities in Accomac and Northampton counties, Virginia, have shifted completely from white potatoes to broilers as a major source of cash income. Accomac, long famed for sea food and truck crops, has recently surged forward to rank among the top poultry counties of the Old Dominion.

### A Region Remade

Linked with Del-Mar-Va's broiler industry is the vast investment of those selling balanced rations, supplies, equipment and baby chicks. The trucking of baby chicks, feeds and finished birds has become a major business. The manure and litter from brooder houses are remaking the vegetable soils of that great trucking region. The birds form an undreamed of outlet for home-grown grains, and winter employment for idle farm labor. A seasonal farm income has been extended throughout the year.

Every major make of feed in the country is coming into the Peninsula. The largest dealer in the United States and Canada for one of the big, nationally advertised feed companies, is located in the little town of Dagsboro, Delaware. A dealer at Millsboro, Delaware, for another nationally known feed company told us that he had seen a train roll out of Millsboro with 23 carloads of finished broilers raised on his feed. The feed business is booming in every town.

It is estimated that 12 million broilers will be produced on the Peninsula this season. In some sections the broiler houses are as much a part of the farm buildings as the barn. The piney woods are filled with long, neatly constructed brooder houses. The mountains of smoke rising up from the brooder stoves in winter, hang over the highways in evenings and make night driving most hazardous. But, "there's gold in them thar' hills!"

### Use Cross-Bred Chicks

Scores of broiler producers are getting rich; others are about breaking even; and some, of course, are losing money. Last year, with birds selling like hot cakes at 25 cents a pound, everyone made money; many built new houses and production this winter has been increased all out of proportion to demand. There are too many chickens, and prices are lower. But cheaper feed has partly off-set the depressed broiler prices.

Usually two batches of broilers are produced annually, but the business was so profitable last year many growers raised three lots. The summer birds came in competition with farm fryers, and most of them found their way into cold storage. This storage stock is a big factor in cheaper chickens this winter.

About 98 per cent of the chicks used are the Red-Rock cross. About 50 per cent of the chicks are shipped in from New England; the rest are hatched locally from New England eggs. Only the very best quality chicks and eggs are used, and fancy prices are paid to get them.

### Sand Litter Preferred

The size of the brooder house varies widely. But, in nearly every house, the birds were terribly overcrowded. A limited survey in Maryland has revealed that those farmers making the greatest profit, allow 150 to 175 birds per 100 square feet of floor space. More growers, however, are using 16x30-feet rooms and crowding 1,000 birds into each. Big growers erect a two-story frame building as a combination feed house and living quarters for the keeper, and attach six brooder houses with a 1,000-bird capacity each on either end. Thus one man cares for the 12 houses containing 12,000 chicks. Low labor and equipment costs are important reasons why that section has gradually cornered the winter broiler market.

While a number of types of litter are used in the houses, coarse beach sand is most popular. It is never changed from the time the baby chicks are put in until the finished birds go to market. It is sprayed twice a week with a strong disinfectant and oil to kill disease germs and keep down dust. The disease hazard is fierce, and it is hoped that better sanitary measures can be worked out.

The better broiler producers have provided runways for their birds. These are seeded to small grain, rye grass and clover which afford some green feed. Birds are given access to the range in open weather.

### Considerable Grain Fed

No two farmers feed their birds alike. Most of them, however, use a combination mash and grain ration with every variation under the sun.

After 10 weeks, many growers burn lights all night in the houses to encourage feed consumption. The mash is fed three times a day, with just enough given so that the birds clean it up an hour before feeding time.

Three pound broilers are preferred, but many are sold at four or even five pounds. To reach these heavy weights, a feeding period of about 14 weeks is required. The heavy feeding of corn during the last six weeks makes a heavy, juicy carcass that has made broiler buyers flock to the Peninsula in droves.

The great bulk of birds are shipped to New York and other big eastern markets, largely by truck. A truck may stop at several farms before it finds a load of properly finished birds. Usually 150 coops containing 3,000 broilers make a truck load. Local dressing plants have been established at Shelbyville and Frankford, Delaware, and at Salisbury and Berlin, Maryland, for distribution of dressed broilers throughout the country.

The Southern Planter Publishing Company, 223 Governor St., Richmond, Va.
(The Southern Planter, January, 1939)

# Diary of a Poultryman

By P. S. White
Egg Farmer, Wayne County, Ohio

*Condensed from Everybodys Poultry Magazine*

**May 2**—I laughed this morning and the world laughed back. I am starting in on a new week and also a new month in good spirits. Kid White tells me that something is wrong when I don't have the old blue Monday, but everything seems to be coming along in good shape.

The wire guards have been removed from around the brooder stoves and also the Mason jar chick fountains. The chicks now have the entire floor and are all eating from the pasteboard chick feeders. These cardboard feeders are just about the slickest thing I have run across in recent years. This is the second year I have used them, and I can find no fault. That is saying a mouthful for a chicken man. Usually we want to tear everything down and rebuild it over our own ideas.

**May 3**—Ten gallon water fountains sure cut down on labor in caring for chicks. When they are set up on wire screens, it not only keeps the floor dry but also keeps the litter out of the water. I had all of the chicks serviced, the eggs delivered to the auction and was home with a load of empty cases by 10 o'clock.

The new truck glides down the road like nobody's business. Thirty-five miles an hour isn't very fast, but I get there just the same. There is one trouble about a small truck, and that is the load can't be too heavy. To overcome this, I always bring home a load of something. If I have enough cases on hand, I bring a load of feed, even if it is not needed right away. It is only a question of time until it will be needed.

**May 6**—Had to buy a new gasoline lantern for the range house. Generators had to be replaced too often in the old one. I bought the best lantern I could find in town, built in pump, Pyrex globe and everything else that is supposed to be the latest. It is rated at 300 candle power. That is a lot of light.

**May 7** — Cleaning day and the manure is going on the truck patch. It is great to put chicken manure on the garden — makes things grow. Speaking of things growing, polk or poke berry sprouts make one of the finest greens that I have ever eaten. Cooked with bacon and top dressed with vinegar—well, it makes a real tasty dish. We put 50 pounds in cold storage today for next winter.

**May 9**—It was one of those coincidences that has happened only once before to my knowledge. The last three eggs in the basket were the 360th egg in three different cases, one being a large special, one a medium special and the third filling the ungraded case.

It was also a coincidence that one of these young roosters jumped on top of the red hot, tin can, oil burning brooder stove. He danced like the mythical character, Old Reuben, who had hot feet. He made such a racket dancing on the rattling lid that when he flew down on the floor all the chicks in the house stampeded to the walls. One chick was forced down in the corner and smothered before I noticed it. Of course, it had to be a pullet chick. Profit and loss, bitter and sweet go hand in hand all through life.

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(Everybodys Poultry Magazine, May, 1939)

**May 10**—It takes time to get accustomed to new equipment. We have found this to be true with the new truck, with the smaller capacity and express or pick up body conditions and different from the flat, stake body of the old one. But we can now haul a load of full cases or a load of empties without roping them. In fact, no rope is carried in the truck unless it is for some special reason. The truck has now gone 500 miles between here and town, and the village is only 5 miles away.

Speaking of mileage, Donn White has ridden his bicycle 1,200 miles up and down the ranch drives. He rides back to feed the chicks or to gather eggs. He carries a basket of eggs in one hand and steers with the other. Sometime—well, it will be a mess to clean up when he falls.

**May 12**—For some reason or other the tin can oil stove in No. 2 went out this afternoon. It must have just happened, because when I found it, the stove was still hot, well nigh red hot. But I am a cagey bird now, have been ever since I had to grow a new set of eye brows and eye lashes as well as another mustache from trying to light a red hot stove last year. The memory of that isn't very pleasant. It is bad business when one strikes a match and has a sheet of fire cover one's head like the dew covers Dixie. Today I let the stove cool down—cold —and then and then only I struck the match. It percolated immediately.

**May 14**—I was a day late according to my regular auction day delivery of eggs. But it didn't cause the boys any particular annoyance as the big truck came in from the route earlier yesterday than usual. It is a busy time of the year for those of us on farms, and the auction crowd, knowing this, plan their work accordingly.

**May 17**—That old return load, that is what I figure on these days as much as getting the eggs to the auction. It was chick feed today. It seems that these chicks are beginning to eat feed in sizeable amounts. And it is only the beginning, only the beginning. After a while, they will eat me out of a house and home.

This year I think I will start to sell the cockerels sooner than usual. Do well nigh anything to get them off feed, for there will be no money made on them this season. The point is to see how little I can loose.

**May 18**—I have never known an egg candler to explode until today. I just well nigh fell over backwards. The 100 watt lamp got too hot, exploded, knocking the bottom out of the candler and scattering glass all through the basket of eggs being candled. I have seen lamps burn out, but this is the first time I ever saw one explode. It didn't hold me up with the work, for I have made it a policy to have extra lamps of all sizes on hand in case of an emergency.

**May 19**—It has been a busy day, just too busy. The first thing, we turned the chicks out doors after making sure they couldn't get underneath the houses. Queer how timid they are about getting outside. First one sticks his head out the door, then another, finally venturing both feet on the ground. Some little insignificant thing startles them, and the whole outfit tears back into the house. After a little, the whole adventure starts all over again. But it won't be long until they will almost tear down the house to get outside.

**May 20**—Donn White sprained his ankle last night, and this morning it was swelled as tight as Dick's hat band. He had to stay home from school, which meant that he wasn't able to help with the work at all today. It doesn't seem possible that the little fellow does so much work until we have it to do ourselves. From the looks of the swelling, he is going to be indoors for several days.

Put two chick feeders out doors this morning. This makes two outside and the water fountain and three feeders inside. When it rains, and it looks favorable now, the chicks have feed and water readily available.

All hands helped plant the truck patch tonight after supper, cabbage, sweet corn, potatoes and tomatoes. More tomorrow, if it doesn't rain.

**May 23**—Donn is still in the house with the bad ankle, although the swelling is going down—slowly. I sure will be glad when he is able to help again. Speaking of chicken manure—20 tons an acre as a top dressing for pasture land sure makes the grass grow. The natives thought last winter that the grass would be burned out, but they have another thought at present. An electric fence divides the pasture in two plots, each 1¼ acres. At the present time, we are pasturing six head of cattle—two cows and four sizeable calves—on the south section. The grass is growing faster than the cattle can eat it. This sounds like a wild story but it is a fact.

**May 25**—Lost about 5 gallons of fuel oil today when the fire went out in No. 3's brooder stove. When the fire goes out, the thermostat cools down quickly. This allows the oil to flow through the stove and out the overflow pipe onto the ground. Drop by drop soon makes a volume worthwhile. But when it runs out on the ground, it looks as if a barrel of oil had been emptied. If my daily losses were no more than today's 5 gallons of No. 1 distillate fuel oil at 8 cents a gallon, wouldn't life be sweet? Wouldn't life be sweet if there was no mortality, no roof leaks, no broken window sash or boxes? The realities in this poultry business are soon realized.

**May 26**—Had a couple of coops of market hens on today's auction. A few birds have gone somewhat by the wayside, molting, breaking down on legs, getting out of condition and general disability. It is a good policy to keep the houses clear of such stock. I won't be able to pay the month's feed bill from the sale, but every little bit helps.

**May 27**—More truck planting today, four more rows of hybrid sweet corn, some broccoli, cauliflower and additional tomatoes. Harold wants to stake the tomatoes this year, to keep them tied up and pruned. We have never done this before, so it will be an experience.

Cleaned the dropping boards in the three north houses, top dressing the truck patch. This top dressing is great stuff, but we are going to need some phosphate and potash to help balance. Guess I will bring out a few bags next Tuesday, as there was no room on the truck today. It is all feed these days on the return load. In fact, today I had to make two trips to town, chick mash, corn, oats and oyster shell.

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# A Review of the More Common Poult Diseases

By Dr. C. A. Bottorff
New Hampshire Agricultural Experiment Station

*Condensed from Turkey World*

PREVENTION and control of diseases in his turkey poults is the aim of every turkey grower. The producer who can rear his turkeys with a low mortality has gone a long way toward making a success of his enterprise. It is hoped that the brief discussion of some of the more common diseases of turkey poults will help the turkey grower to prevent some of these troubles.

### Pullorum Disease

Pullorum, a common disease of chickens, has been increasing as a cause of mortality in poults. The disease is caused by a bacteria called Salmonella pullorum.

Symptoms of pullorum in poults are similar to those found in chicks. The poults are inactive, remain under the hover, do not eat and show an unthrifty appearance. Losses start during the first week and may continue up to three to four weeks of age. The average mortality reported in 32 outbreaks by Hinshaw was 34.5 per cent. It is necessary that a bacteriological examination of the poults be made before a positive diagnosis can be given.

The principal method of transmission of pullorum has been shown by Hinshaw, Brunett, and others, to be the result of hatching turkey eggs in incubators with infected chicken eggs. The disease is very seldom transmitted by infected adult turkeys, although there have been a few cases reported where the disease was transmitted through infected turkey eggs.

There has been an increasing amount of pullorum bloodtesting the past few years in the eastern section of the country at the request of the hatcheryman, so he could maintain the pullorum status of his flock and still custom hatch turkey eggs. Pullorum testing of an adult flock should be done where an outbreak occurs in the young poults, and the flock is to be used for breeders.

We can prevent the disease by hatching all poults in separate incubators and in separate rooms or buildings from where chickens are hatched. All poults should be raised entirely separate from chickens.

### Paratyphoid

Reports of losses in poults and adults from paratyphoid infections have been increasing during the past few years. Paratyphoid infection covers those bacterial organisms belonging to the Salmonella group, other than Salmonella pullorum (Pullorum disease) and Salmonella gallinarum (fowl typhoid).

The young poults that are affected usually huddle around the stove, show uneven growth, weakness and a diarrhea. In acute cases, the poult may appear healthy at night and in the morning be dead. Mortality varies from 5 per cent to 80 per cent, with

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an average of 20 to 30 per cent. Experimental evidence by various workers shows that paratyphoid is spread in much the same manner as pullorum; that is, through the egg, infected incubators, etc. Diagnosis can be made only by a bacteriological examination of the organs of the poult.

No treatment has been found successful in controlling this disease in poults. The agglutination test may be used to eliminate carriers from an infected adult flock. The antigen must be prepared from the same organism that is causing the infection in the flock. This agglutination test does not work with poults, nor do we know any other test that will at present.

### Omphalitis (Navel Infection)

Omphalitis, or navel infection, is the result of improper healing or closing of the navel with subsequent introduction of mixed infections. Navel infection is usually due to faulty incubation or insanitary conditions in the incubator.

The poults are weak, inactive, show uneven size and tend to huddle around the hover. The navels are enlarged, inflamed and often a scab is found over the opening. Mortality will vary, depending on whether the cause is due to improper operation of the incubator or to the insanitary condition of the hatcher. Where both conditions are present, mortality is high.

There is no treatment for affected poults other than maintenance of good brooding conditions. A thorough cleaning and disinfection of the incubators and hatching rooms will usually prevent further trouble, if the cause is sanitation. Formaldehyde fumigation of incubators, according to the directions given by the manufacturer, is recommended.

### Vitamin A Deficiency

Poults having a vitamin A deficiency show an unsteady gait, closed eyes, unthriftiness, and later a discharge from the nostrils and eyes, along with a swelling of the sinuses. Post-mortem examination of the throat and upper esophagus show white pustular mucous glands.

Nutritional experiments show that turkeys have a higher vitamin A requirement than chickens. Because of this characteristic, it is very important that the parent stock, as well as the young poults, be fed a ration having adequate amounts of vitamin A.

### Rickets (Vitamin D Deficiency)

Rickets occur in poults when they do not have properly balanced amounts of vitamin D and minerals. It is manifested by leg weakness, enlargement of the hocks, poor growth, and poor feathering. Post-mortem examination of the poults shows a sunken condition of the ribs where they are joined together, along with a soft or rubbery condition of the bones. This is most noticeable in the leg and breast bones and in the beak.

Poults have a high requirement of vitamin D, will show a deficiency of vitamin D sooner than chickens. Poults from parent stock having adequate amounts of vitamin D will not show a rachitic condition nearly as soon as poults from parent stock deficient in vitamin D. Rickets have been observed in chickens at three to four weeks of age that were fed a properly balanced ration, but were affected with intestinal coccidiosis. It is possible that poults affected with intestinal coccidiosis may develop rickets the same as observed in chickens.

Treatment consists of supplying proper amounts of vitamin D and minerals.

### Perosis (Slipped Tendon)

Perosis is a nutritional deficiency disease which causes a swelling of the hock joint and a rotating of the leg bones in a way so that the Achille tendon slips out of its normal position. The legs become bowed, and the hock joint is enlarged and flattened. The bird moves about with great difficulty, walking mostly on the hock joint. The bones show good calcification and no evidence of rickets.

Several factors are involved in preventing this condition. Chief among these is manganese, along with proper amounts of phosphorus and calcium. When small amounts (.25 of 1 per cent) of manganese are included in the ration along with the proper ratio (2 to 1) of calcium and phosphorus, no trouble is encountered from perosis.

### Coccidiosis

Only two species of coccidia are known to attack turkeys and neither of these affects chickens.

The symptoms found in turkeys are different from those encountered in chicks. The birds are listless, inactive, have dropping wings and brownish diarrhea. Post-mortem examination shows an excessive amount of brownish colored mucous material in the intestines. Scattered over the inner wall of the intestines are white pus-like areas or spots, where the coccidia are to be found.

The prevention of coccidiosis can be best attained by keeping the poults entirely separate from adult stock and rearing them under artificial brooders. Poults should be brooded in separate units according to age. The use of wire porches and keeping the litter extremely dry in the brooder house is very important. Visitors and persons taking care of the poults may act as carriers.

Brooding of poults by turkey hens is a constant source of danger, because the mother hen who is eliminating coccidia cannot help but infect the poults she is rearing.

In an acute outbreak of coccidiosis, poults should be given a 40 per cent dried milk mash. This should be fed until a good laxative action is noticed, which is generally about one day. Litter should be cleaned every day if it is not dry in all parts of the house. Before a milk treatment is used, a laboratory diagnosis should be made, since the feeding of a 40 per cent dried milk mash may not be indicated in some other types of intestinal diseases.

### Blood Protozoan Disease of Turkeys

A new blood protozoan disease of young turkeys has been described in a report by Johnson, Underhill, Cox and Threlkeld. This disease was first observed by them in 1933 and approximately 30 per cent of the poults died during July and August. The disease has reoccurred each year since then during July and August, with losses from 10 to 15 per cent being reported. There were no cases observed after the frosts or cold weather, late in September.

This protozoan blood parasite was found to be transmitted by blood-sucking blackflies that had fed on a turkey infected with the disease and then later fed on non-infected poults. This explains why the disease occurs principally during the months of July and August, or when the blackflies are prevalent.

Young poults up to 12 weeks of age are the ones chiefly affected. Visible symptoms last for only two or three days, at which stage the poults either die or recover. The poults are inactive, do not eat well, cannot stand, and have difficulty in breathing. In later stages, the poults go into a coma and finally die. Poults that recover usually develop into carriers of the disease and act as a source of infection for young poults the next year. The disease is not transmitted by direct contact of sick birds with well birds.

A microscopic examination of blood smear for the presence of the parasite is necessary for the diagnosis of this disease. No drugs or treatments have been found of any value in treating poults affected with the disease.

The disease has been prevented by the disposal of all turkey breeders as soon as the required number of hatching eggs has been secured. It is advisable that the breeding turkeys be disposed of before the blackfly season.

## *Smoked Turkey Process Uses Ultra-Violet*

Who doesn't like smoked turkey? Who does, you retort, and a good retort it is, for few are aware that this delicacy can be had in America. Turkeys cured, then smoked and cooked at the same time are sought after by the gourmets of this country, and Pinesbridge Farm (in Westchester County, N. Y.) is kept busy shipping its product all over the country.

The process is secret and begins with a special cure carried on in a refrigerated room. From there the turkeys are taken to the smoke-house for smoking and cooking. There precise regulation of heat, ventilation and smoke is essential. In a matter of minutes, a whole houseful of fowl may be irretrievably ruined if the attendant relaxes his attention.

For the last three years, this farm has supplied smoked turkeys to the Waldorf-Astoria, Colony Restaurant, The Stork Club, the steamship "Queen Mary," the crack "20th Century Limited," and many other exclusive restaurants, night clubs, and establishments, and has filled orders for individuals whose names read like a page in Who's Who.

What is this secret process, and why cannot anyone smoke turkeys? First of all, the brine in which the turkeys must be cured after drawing them contains eleven herbs and spices, some very rare and obtainable only from a particular house in London specializing in them. During curing, and afterward until they are taken to the smoke houses, the turkeys are kept in a refrigerator at a closely held temperature of 40 to 42 degrees, Fahrenheit, with the air circulated through the refrigerating units by powerful fans, and with all the possibility of contamination by mold of decay or the bacteria of disease eliminated by use of the Rentschler-James Process, which uses ultra-violet sterilizing lamps. From this refrigerator, birds are taken as required to the smoke houses, where they are hung over a wood fire. This fire cannot be made of just any wood, for the kind has an effect upon the taste of the meat. It has been found that apple wood is the best, and the farm's operator scours the nearby countryside for old apple orchards, which he buys and cuts into cordwood.

—Scientific American, April, 1939.

*Some Helpful Hints on . . .*

# The Boning of Poultry

By E. Grew

***Reprinted from Canadian Poultry Review***

THOUGH the boning of fowls is rarely practiced, it is common enough with turkeys, especially crooked breasted ones, where the twist in the keel of the breast makes neat carving almost an impossibility.

After killing and plucking, hang the carcass for at least six hours so as to permit the blood and oily internal fat to solidify. The presence of liquid blood may give the flesh an objectionable color, and saving the internal oil is very necessary for successful cooking.

### Draw the Sinews First

The first operation is the drawing of the sinews. This is done by breaking the shank half-way between the foot and the first joint of the leg. Before breaking, cut the skin of the shank, but across the front only; any incision across the back may partly sever the sinews, and cause them to break. Extend the lower part of the shank over the edge of the table, or any support convenient, and snap the bone. Do not cut the shank off, but twist it around a few times in such a way as to cause the bone to protrude through the skin.

A piece of rope or wire shaped into a noose and fastened to a post or wall is necessary to draw the sinews. Place the lower part of the shank and foot crosswise in the noose, and the lower part of the shank will act as a lever. Grasp the leg firmly around the knee, causing as little pressure as possible on the fleshy part of the leg, and so minimizing the risk of tearing the skin from the flesh; then with a downward pull the sinews will come away from the broken shank with the foot.

### No Not Draw the Bird

Chop off the leg immediately above the shank; this will simplify the extraction of the leg bone. It is important for the operator to bear in mind that the bird must not be drawn or disembowelled.

Attention must now be given to the neck. Make a small incision across the back of the neck half way between the head and the shoulders, insert the point of the knife and make a long parallel cut towards the shoulder-blades; then turn the bird on its back, and cut the skin right across the front of the neck just opposite where the small incision was made in the back of the neck.

### Use a Narrow, Sharp Knife

Grasp the neck and gullet with one hand and with the other pull the neck skin over the breast, thus exposing the crop. Disconnect the crop from the skin, cut the gullet off close down to the wish-bone and cut the neck right off about an inch from the breast, leaving the carcass minus a neck and lower portions of legs. Also cut the wings off at the second joint or forearm. A narrow, keen pointed

Donovan Publications, 184 Adelaide St. West, Toronto, Canada
(Canadian Poultry Review, April, 1939)

knife of medium length is essential to separate the flesh from the bones—one that will work close to the bone without mutilating the flesh to any unnecessary degree.

Next, lay the carcass breast down and carefully insert the knife the whole length of the shoulder-blade, taking care not to puncture the skin. Clear all flesh away from the shoulder bone, working deep down to the base of the wing or upper arm, and with the point of the knife disjoint the right wing, but be careful not to cut it off. Then take a firm grip of the wing with the left hand and force the upper arm up in such a manner as to expose the knuckle. Clear all flesh from the bone down to the forearm, and the bone will come away. Then deal in the same way with the other wing.

### Wishbone is Easily Withdrawn

Turn the carcass on the back and with the point of the knife outline the wish-bone and it may be carefully and easily withdrawn. With the wish-bone removed, move the knife carefully towards the breast-bone and up along the keel until it is possible to force the leg forward, and the leg joint is exposed. This joint protrudes from under the breast meat which has been cut away and appears inside-out. Disjoint, but do not cut off. Clean the flesh away from the knuckle and along the thigh bone to its base; disjoint and it will come away. With both legs boned all that remains to be done is to trace the bone structure along both back and front towards the tail. By forcing the flesh away from bones, the fillet turns inside-out.

After leaving the point of the breast bone the operator must be careful not to interfere with the bowels, which have no protection other than a layer of fat and membrane.

By working along both back and front, the bone structure of the carcass can be got away completely. Some people favor leaving on the tail.

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ANTI-KNOCK gasoline is improved by the addition of lecithin, a constituent of egg yolk, according to a patent granted to Johan C. D. Oosterhout, Port Arthur, Texas, and assigned to the Texas Company of New York City. Tetraethyl lead, added to gasoline for anti-knock purposes, tends to deteriorate and form a cloud in the fuel. The addition of from 1 to 15 per cent of lecithin to lead-ethyl fluid prevents the cloudy formation.

AN egg substitute, which may be used for all dishes which ordinarily require eggs, has been developed by the German dairy industry in line with the self-sufficiency policy of the government in that country. The substitute is made of skimmed milk and whey, has a milky taste, and can be used for baking, cooking and even whipping. Efforts are being made to reduce the demand for eggs in Germany.

THE JAPANESE natives of the Island of Kotosho will not eat eggs, believing them fatal to man.
—Utah Poultry Co-operator, April, 1939.

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*Essentials of the Type of House and Equipment for Successful . . .*

# Battery Brooding

By Clarence E. Lee
Beacon Milling Company

*Condensed from New England Homestead*

THE first requisite for successful battery brooding is a suitable building. This does not, by any means, always have to be a new building. Many one-car garages, portions of barns or laying houses or other existing buildings are being used successfully. Of course, from a standpoint of practical farm operation there are many advantages in constructing a new building. Many of the buildings being used for battery brooding are not well suited for the job in all particulars.

The length and width of the building or room used for battery brooding will depend primarily on the number of chicks to be brooded at any one time and on the particular size and type of batteries selected for the job.

One essential to a battery brooder room is sufficient height. If there is a low ceiling, the cubic air capacity is restricted and when the room is full of chicks it will be necessary to circulate the air so rapidly in order to have sufficient oxygen and get rid of the odor from the droppings, that there is pretty sure to be a draft on some of the chicks. Rooms with low ceilings are always more subject to drafts anyway because there is so little space between the top of the battery and the ceiling.

### High Ceilings Preferred

In our opinion, any room used for starting batteries should be of sufficient height to allow eight feet from floor to ceiling, in the clear. If this height is 9 or 10 feet, so much the better, but we would make 8 feet the absolute minimum.

One of the principal difficulties in operating a battery plant is to keep it sufficiently cool for best results during hot weather. High ceilings are a tremendous advantage during the summer because, with so many birds in such a small area, there is a large amount of animal heat produced and unless there is plenty of room for this to rise rapidly above the birds the room is likely to get insufferably hot with consequent detriment to the growth and feathering of the chicks.

Whatever the height of the ceiling and whatever the height of the batteries, there should be at least 2, and preferably 3 or 4 feet or more, between the tops of the batteries and the ceiling.

The length and width of the room should be figured with the number and size of batteries in mind. However, regardless of the size of the individual batteries, be sure to allow at least 15 inches between units, for proper air circulation, and the aisles should be not less than 3 feet in width and may need to be wider if wide cleaning pans must be cleaned and maneuvered in the aisle or the manure car or litter carrier must pass through.

New England Homestead Company, 29 Worthington St., Springfield, Mass.
(New England Homestead, Feb. 11, 1939)

Most people make the mistake of allowing insufficient room. It is far better to spend a few dollars more and make the building a little larger than necessary. Air conditions will be much better and it will be much easier to work in such a building that these advantages alone would be sufficient to justify the extra expense, but more than that, the chicks themselves will do so much better that it is easy to justify the extra space on a purely economic basis.

### Frequent Change of Air Needed

Dr. M. W. Emmel of the Florida Agricultural Experiment Station has reported on the effect of adverse atmospheric conditions, including decreased oxygen and increased carbon dioxide, in producing autointoxication and disease, particularly with birds in battery plants where the liability of adverse atmospheric conditions is much greater than on floor plants.

Dr. Robert H. Hall, in a paper read at the Harper Adams Conference in England in 1936, reported that records there showed that ideal results were obtained by changing the air eight times per hour. Our experience indicates that this is probably a good standard to use.

With baby chicks we find that eight air changes per hour are not necessary in a room with a high ceiling. As the chicks get older, of course, more oxygen is required and there are more materials to be carried off, including carbon dioxide and extra moisture. Any system must be subject to a flexible control so that it can be adjusted to fit the operating conditions at all times.

If we have a starting battery room 10 feet by 15 feet and provided with a 9-foot ceiling we will have to pass through this room 10,800 cubic feet of air per hour, or rather we will have to provide a ventilation system which will do that though we may not run it at capacity more than half the time.

### Window Construction Important

From many angles, it would be better if the starting room had no windows at all. In hot summer weather, windows are a disadvantage because they let in a lot of heat and a well insulated wall instead of a window will keep the heat out of the battery room much more effectively. Ventilation is obtained through flues and regular ventilators and therefore windows are not needed for that purpose.

Very little light is needed, just enough for the chicks to see feed and water readily and too much light is likely to make the chicks more nervous and cause a good deal of damage when people pass through the room, particularly if visitors are relatively few. If people are coming and going constantly the chicks very soon get used to it and no amount of light will cause any trouble.

At the Beacon Poultry Research Farm we do not darken the starting battery room in any way and there are four large windows in the room, but with the changes in the number and type of batteries in the room, over a period of years, we find that these windows are a disadvantage because they cause a serious problem in battery arrangement. It is essential to arrange batteries so that all of them get practically the same amount of light and during the same hours of the day, if you expect equal results in growth in all units.

### Will Be Smoother

It is true that if you put a battery full of chicks up in front of an open window and let them get plenty of sunlight and then take another battery of chicks from the same lot and on the same feed and put those back where they do not receive any direct sunlight, that the chicks grown in direct sunlight will be smoother and tighter feathered and will have redder combs and in every way will be brighter and more normal looking chicks. However, if the ration is a good one, they won't weigh even a fraction of an ounce more and they may not do any better as mature birds so the question arises as to whether the difference in appearance made by direct sunshine actually means anything on a dollars and cents basis.

Our opinion is that direct sunshine is worth something in building extra vigor and vitality and resistance to disease but we have to confess that we haven't any data which proves the point though we have carried out a comparison similar to the above.

Needless to say, the building should be well insulated and artificial light should be so arranged so that there is a good, uniform distribution of light with no objectionable shadows.

In reference to ventilation, there are many different systems that could be used satisfactorily and if a complete circulated air heating and ventilating plant is used, of proper construction, results should be all that could be desired.

### Proper Humidity

If circulated air is introduced in the room it must be warmed to just the proper temperature during cold weather and also must be humidified. We prefer our starting room to run at 60 degrees Fahrenheit and to carry not less than 60 per cent humidity and preferably 70 per cent to 75 per cent, for experience has shown us that we can markedly decrease mortality with proper humidity. In fact, with good chicks and proper temperature and humidity, the loss while the chicks are in the starting batteries would not be enough to use up the four extra chicks that are sent with each 100.

A concrete floor is always an advantage in a starting battery room because of the high humidity requirements, particularly during the first three weeks, and the occasional necessity of wetting down the floor in order to bring the humidity up to the required points. Even where an air conditioning system is used it may be found that the humidifier will not furnish enough moisture to keep the humidity up where it belongs when the air is very dry outside.

Our observation has been that probably eight out of every ten battery operators run their starting rooms entirely too hot and thereby get weaker chicks, poorer calcification, more trouble with perosis or slipped tendons, poorer feathering and increased susceptibility to coccidiosis and other troubles. If your starting battery is as good as it should be, your chicks will thrive with a room temperature of 60 degrees.

### Buying Equipment

There are so many different makes of batteries on the market that will give reasonably satisfactory results that selecting one is somewhat of a problem. However, if trips are made (alone and unannounced) where various types of units are working, considerable information can usually be obtained. Some batteries are apparently built for sales appeal. A battery may be finished in platinum and black or Alice blue or royal purple, but what is more important is how many years of service you will

**Space Required Per Chick**

| | |
|---|---|
| 1st week | not over 1 chick per 9 sq. in. floor space! |
| 2nd and 3rd weeks | not over 1 chick per 18 sq. in. floor space! |
| 4th and 5th weeks | not over 1 chick per 25 sq. in. floor space! |
| 6th and 7th weeks | not over 1 chick per 36 sq. in. floor space! |
| 8th and 9th weeks | not over 1 chick per 45 sq. in. floor space! |
| 10th and 11 weeks | not over 1 chick per 60 sq. in. floor space! |
| 12th week and upward | not over 1 chick per 75 sq. in. floor space! |

get out of the finish and how quickly it is likely to be knocked off in actual use.

It is extremely important to select equipment that is built out of good, heavy, rugged material. Also, inspect your battery to see if there are a lot of sharp edges which will cut your hands.

### Check Consumption

It is an excellent idea to check up on the actual consumption of electricity before you buy a battery. Perhaps you can have a battery put into your place on trial. If possible, get a meter on it. Probably your local electric company will loan you one for such a test. Watch and see whether the temperature at which you set the thermostat is maintained exactly and what the degree of variation may be. Don't depend entirely on the thermometers which come with the battery but hang a few other thermometers around the battery and check these with a good clinical thermometer and then take your readings several times a day in different parts of the battery compartment.

### Feed and Water Space

Be sure that your batteries have plenty of feed and water trough space. Get somebody's actual experience on that point before you buy. Feed troughs should provide approximately one inch of feeding space for every chick under the hover. Don't depend on what advertising literature may say about the capacity of a battery. Check by the above table.

With a good building, properly ventilated and insulated, and the temperature and humidity held at the proper point and well-made batteries provided, all you need is good chicks.

## *Use of Charcoal to Deodorize Poultry Houses*

Experiments recently conducted with charcoal in chicken houses have demonstrated its usefulness for the banishment of objectionable odors which emanate from the dropping boards.

Pulverized charcoal, which proved to be the most economical, was sprinkled on the dropping boards. The ammonia was then absorbed by the charcoal and retained to make the droppings more efficient as fertilizer. The hen house air was freshened and sweetened. Since the charcoal is pulverized, the birds will not attempt to eat it. Thus, the application of charcoal serves a double purpose for the poultryman. It purifies the air in his chicken house and conserves the ammonia from the droppings, which are high in ammonia gas, as charcoal absorbs up to 80 times its own volume of gas.

—B. W. Stevens, Pacific Poultryman, May, 1939.

# QUESTIONS AND ANSWERS

## Use of Perches in Brooding

**Question**—When should chicks be perched?

**Answer** — Chicks that have been growing rapidly and uniformly and are well feathered at five weeks of age should be perched at that time. Even before five weeks of age training perches can be placed around the hover. Little difficulty will be encountered in getting the chicks to perch at this time if roosting racks are used; however, when the perches are above the droppings boards more difficulty will be experienced and considerable persuasion will, perhaps, be necessary at about dusk before the chicks can be trained to use these high perches. Feathering will be faster and smoother if the chicks are trained to perch fairly early in their lives.

—Gordon E. Bearse, Washcoegg.

## When to Change Feed

**Question**—We are undecided as to the proper time to shift from starting to growing or laying mash.—A. R. T., Wis.

**Answer** — Most poultrymen like to change from starting to growing or developer mash when the chicks are six to eight weeks old, and then change to the laying mash as soon as the pullets go in the laying house.

Other feeds are so constituted that the growing or developing mash is eliminated. Companies manufacturing feeds of this type recommend that starting mash be fed for the first 12 weeks and then a change made to the laying mash.

The one sure way to know you are right is to follow the directions of the manufacturer of the feed you are using. All large feed companies maintain extensive testing and laboratory facilities and are naturally better able to direct feeding operations than anyone else.

—Poultry Tribune.

## Manganese Deficiency in the Ration

**Question**—What are the effects of lack of manganese in the ration?

**Answer**—A ration that is deficient in manganese will cause perosis or slipped tendons in growing birds, and also reduce hatchability, egg production and the quality of shells in the laying flock. Of the various ingredients that go to make up a poultry ration wheat and wheat products and alfalfa meal are the most potent sources of manganese. If the ration contains a normal supply of these feeds the chances for a deficiency in manganese are rather remote.

If there is a manganese deficiency in the ration, the addition of four ounces of manganese sulphate to a ton of mash is sufficient to eliminate any shortage.

—Noel Bennion, The Eggsaminer.

## Production Costs of Turkeys and Capons

**Question** — How does the cost of producing capons compare with turkeys?

**Answer** — Generally speaking a pound of gain can be produced much cheaper in turkeys than capons. With fast growing early maturing turkeys that can be put on the market at 6 to 6½ months of age it requires from 4 to 4½ pounds of feed to produce a pound of gain. It takes from 8 to 10 months to get capons up to the desired weight and finish and on the average it requires 7 to 8 pounds of feed to produce a pound of gain.

—Noel Bennion, The Eggsaminer.

## Do Not Expect Too Much

**Question**—My flock of 109 birds is only laying about 70 eggs per day. How can I get them to lay more eggs?—G. C., Kans.

**Answer**—You should be very well satisfied with the production you are getting. Although you hear of people who say that every one of his hens lays every day, in most cases this is a misstatement of facts. A flock of chickens that averages 160 eggs per bird for a year is doing very well.

—Poultry Tribune.

## Force-Molting the Layers

**Question**—Is it advisable to force-molt the laying flock during the summer months in order to get increased production during the fall and winter months?

**Answer**—With the average flock, it is not advisable to force-molt them during the summer in an attempt to get increased egg production during the fall and winter months. Experimental results at Oregon State College show that the force-molted birds do not lay as many eggs as the birds permitted to molt naturally, and the eggs they do lay do not bring as much money as those from naturally molted flocks. In this experiment the mortality was about twice as high in the force-molted flocks.

—Noel Bennion, The Eggsaminer.

## Smoking Turkeys

**Question**—Could you give me a set of instructions for preserving turkey meat by smoking?—Mrs. T. M. M., Mont.

**Answer** — Kill, pick and draw the birds in the usual manner. The curing mixture consists of 6 lbs. salt, 3 lbs. sugar, and 3 oz. saltpeter dissolved in 4½ gallons of water. About four times this indicated quantity of pickle is required to cover 100 lbs. of turkeys, when carefully packed in a 50-gallon barrel.

The turkeys should be packed carefully and close together in a suitable container, such as a crock or a clean odorless hardwood barrel, and weighted down so they will not float when the curing solution is added. Then pour the solution over the turkeys until they are covered with a slight excess of liquid. It is important to hold the temperature as near to 38 degrees Fahrenheit as possible. Remove the turkeys once each week, and repack to remix the solution and to make sure that it comes in contact with all parts of the birds.

Depending on the weight of the turkeys, the meat should be sufficiently cured in two to four weeks to be removed from the pickle and prepared for smoking. It is suggested that the individual turkey remain in the pickle from 1 1-3 to 1½ days per pound of dressed weight.

The cured turkey should be washed, hung up to dry, then smoked, using hardwood, at a suggested smokehouse temperature of 100 to 110 degrees Fahrenheit. Several hours in hardwood smoke may give sufficient flavor, although some may prefer to smoke the meat longer, even to the extent of having a fire under it 8 to 10 hours each day for several days.

—Turkey World.

# VIEWS OF THE EDITORS

## Cities Grow Larger, But Farm Population Stable

The number of persons living on farms in the United States is approximately the same as in 1910, but the total population of the country has increased about 33 per cent.

According to the Bureau of Agricultural Economics, the farm population, which is about one-fourth of the total population in the United States, accounts for approximately one-third of the births and one-half of the excess of births over deaths each year. Failure of farm population to increase at as rapid a rate as national population is attributed to extensive migration from farms to villages, towns and cities. The number of people living on farms has decreased from one-half of the total population to one-fourth in less than a century.

Rapid technological changes have made it possible for a relatively stable number of farms to produce food and fiber crops, it is pointed out. Increases in efficiency, however, have not been equally distributed in all parts of the country nor to all agricultural groups. But the increase in the productivity of the average worker in agriculture is said to have kept pace with that of the average factory worker.

—U. S. Egg and Poultry Magazine.

## Boost That Million Dollar Show!

Even before the Seventh World's Poultry Congress had been awarded to the United States of America, it was testing the vision, courage, determination and faith of our poultry leaders. Today, with only about "90 days until the congress opens" in Cleveland, Ohio, July 28, it is still presenting the same challenge.

Characteristic of democratic procedure was its beginning. I recall very distinctly how a small committee of five poultry industry leaders in the spring of 1936 was struggling with the committee on foreign affairs in the U.S. House of Representatives. The sixth congress which was to be held in Leipzig, Germany, that summer, had not been considered of sufficient merit by the legislators to justify an appropriation which would permit of U.S.A. participation. That was one problem. But from the standpoint of our poultry leaders, a still more important problem involved an official invitation from the United States to the World's Poultry Science Association, sponsors of the Sixth World's Poultry Congress. Up to this time, no World's Poultry Congress had been held in the U.S.A., where the poultry industry is of greater economic value than in any other nation of the world.

Once the committee on foreign affairs refused official participation in the Sixth Congress. Our leaders pressed for reconsideration. The committee refused to reconsider. Then much influence was brought to bear on certain members of the committee. Reconsideration followed and the committee not only approved of U.S.A. participation, but also authorized the President of the United States to issue an official invitation to the World's Poultry Science Association to hold the Seventh Congress in the United States. That experience is characteristic of many similar problems which have been faced and solved since the original "okay" was obtained.

To build "a million dollar show for a billion dollar industry" immediately became the goal of the large poultry industry committee which was created to sponsor the Seventh World's Poultry Congress. Where would the money be obtained? Not from the government of the host nation, as had been the case in previous congresses which were held under monarchial forms of government. No, it would have to come from the poultry industry itself. And largely from two sources—the sales of exhibit space and from affiliate membership sales.

So with that financial plan, the committee began creating the Seventh World's Poultry Congress. In Cleveland, Ohio, where 20 acres of floor space under roof are available for the exhibitions and meetings, the congress headquarters has been established. Manufacturers of every conceivable kind of poultry product have been liberal purchasers of space in the exposition. Many allied industry manufacturers will be represented, too. So great is the interest in exhibit space that the outlook now is for every available square foot to be sold.

But poultry raisers themselves have been slow to realize the great values which will accrue to the poultry industry from this gigantic exposition—the largest strictly agricultural exposition ever held in the United States. It is not surprising, however, that the congress committee should have this experience because, comparatively, the poultry industry is still young and its regional and national organizations have not had the advantage of a long number of years experience.

Membership sales to date total more than $100,000 for the support of the congress proper. About $75,000 more, which represents the quota of the various states cooperating in the membership sales, has stayed in these states. This amount is being used to stimulate interest in the congress back in the various states through essay contests, poultry scholarships, special exhibits, and other means which will be effective in the promotion of congress participation.

But as individuals connected with the poultry industry, earning our living in one way or another, you and I want to know what the congress will contribute to our future. Three things stand out definitely. First of all, the congress is making a great contribution in the development of men and women who will be future leaders in this industry. Second, it is bringing to the industry such a volume of publicity as has been unknown heretofore. Through all of the devices available for publicity, all the people of the United States are being told about this great congress which will be the show window of our billion dollar industry.

And then, last but not least, is the important angle of consumer education—the greater use of poultry products in the future. This development alone promises to be worth more than the entire cost of the congress in time, personal sacrifice, and money.

There are in this country several hundred thousand more people who should be willing to become stockholders in this outstanding event—stockholders without personal liability except for the small cost of an affiliate membership.

The faith of our leaders is being rewarded. The success of the congress already is assured, but not one of us should be satisfied with anything less than "a million dollar show for our billion dollar industry."

—O. A. Hanke, Poultry Tribune, May, 1939.

## Eat Eggs

The breakfast food people and the fruit folks have through years of advertising almost eliminated eggs from the American breakfast table along with bacon and ham. Are we surely becoming a bunch of "sissies" and no longer need breakfasts that "stick to our ribs?" Or is it the power of suggestion before us all the time in clever advertisements in magazines, over the radio, on the screen, and on billboards along our highways? As poultry people we have no one to blame but ourselves for the predicament we are in.

Why should we blame the fellow who is wide awake and out after the business? It is up to us to look after our own interests. We have something really worthwhile to offer the public and we should offer it in the most attractive manner possible.

It is true that the hen provides us with a sealed package of food filled with proteins and fat accompanied by minerals and vitamins. The best of eggs come in packages of different sizes and shades of color. Often eggs are dirty even to the point of being filthy. Eggs in this condition are not attractive to the buying public, in fact, they are repulsive. More grading must be done, not only as to size alone, but as to shades of color also. Competition is keen and the sooner we realize this fact and all work together for more attractive packaging of eggs, accompanied with quality that cannot be questioned, the sooner eggs will again come into their own, and not until then will they make much headway with the odds that are against them.

—Dixie Farm and Poultry Journal, May, 1939.

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TWENTY-FIVE turkey producers in Howard County, Missouri, organized a marketing association in 1938, and marketed 3,151 birds totaling 46,216 pounds and averaging 55.9 per cent U. S. Prime grade. They received a net premium of $1,530, or slightly more than 48 cents per bird, over what they would have received if the birds had been sold on foot. If Missouri's entire 1938 turkey crop had been marketed this way and had graded 50 per cent U. S. Prime, Missouri's turkey income would have been $144,600 greater than it was for the year.

AT THIS time of the year the Egyptians are busy hatching much in the same way as they were in the days of Moses. The eggs are hatched in ovens varying in size up to 20,000 capacity. No thermometer is used. The operator lives inside the oven and is very sensitive to changes in temperature which he regulates by manipulating the fire. The fuel used is camel dung and straw. The ovens and chicken pens are usually full of smoke, yet the hatches are satisfactory. Truly, the Egyptian chicken must be a tough customer to stand up to such treatment.

—The South African Poultry, Pigeon and Bird Magazine, March, 1939.

## *Buying Chicks on the Installment Plan*

I'm not so happy about the new development of selling chicks on the installment plan that is indicated in a number of advertisements in the papers. It is true that installment buying has become a very large factor in modern merchandising. Few of our homes are bought outright. Finance companies hold the title to a vast proportion of our automobiles. Many of our radios, refrigerators and washing machines, and in some cases our furniture and wearing apparel, are bought on the installment plan. In many cases, there is a good deal to be said for it.

But it seems to me that installment buying is altogether out of place in the purchase of baby chicks. There may be particular cases where deferred settlements between seller and buyer are a matter for arrangement between the two. But any such thing as a development of general installment buying in relation to the sale of baby chicks is to be deprecated.

When a salaried man buys an automobile on time with the intention of paying for it out of his income, he is not buying something that has to be fed and raised. For the first year at least, his investment should involve little additional expense other than bare operating costs. But when a person buys baby chicks, he is buying a serious liability, if he is not in a position to raise them to maturity. If a person hasn't enough money to pay for chicks outright at a cost of 10 to 15 cents, how does he expect to be able to pay for them on any installment plan and at the same time raise them to maturity at an added cost of 50 cents to a dollar apiece—and all before he can expect anything in the way of return from them?

—Ted Reeman, New Jersey Farm and Garden, April, 1939.

¶¶ THE DELAWARE poultry industry is being financed on a plan that lets the big fellow hold the bag and the little fellow, meaning the poultryman, do the work. In most instances the hatcheryman furnishes the chicks, the feed dealer the feed and at market time, they get paid, providing there is enough to go around. If there is not enough, each takes his pro-rata share and they make a fresh start. The producer pays from $2 to $4 a ton premium for feed purchased on credit.

—From "Around the Lot with the Old Poultryman," The Poultryman, March 31, 1939.

¶¶ L. P. CHATEL, of Plainfield, N. J., formerly a coffee importer, now is combining a very satisfactory retail coffee business with the selling of eggs. Housewives on the route covered with his freshly roasted coffee asked him to supply them with eggs of the same high quality, so he is developing a small plant of 500 layers to meet the demand.

—New Jersey Farm and Garden, April, 1939.

¶¶ MISSOURI poultrymen vaccinated 91,000 pullets to prevent chicken pox during 1938, averting losses that would normally have exceeded $23,000.

# POULTRY STATISTICS

## Hens on Farms — Rate of Lay

Number of Hens Per Flock, and of Eggs Laid Per Hen and Per Flock, First Day of Month

| Geographic Division | Layers per flock | | | Eggs per 100 layers | | | Eggs per flock | | |
|---|---|---|---|---|---|---|---|---|---|
| | Jan. 1 | Mar. 1 | Apr. 1 | Mar. 1 | Apr. 1 | Aggregate Jan.-Apr. | Mar. 1 | Apr. 1 | Aggregate Jan.-Apr. |
| North Atl. | | | | | | | | | |
| 1928-37 (Av.) | 96.9 | 92.8 | 89.7 | 40.6 | 55.3 | 152 | 37.7 | 49.4 | 141 |
| 1938 | 96.7 | 93.8 | 91.2 | 47.9 | 59.2 | 177 | 44.7 | 54.0 | 166 |
| 1939 | 98.4 | 94.2 | 89.1 | 48.2 | 58.0 | 177 | 45.4 | 51.4 | 166 |
| North Cent. | | | | | | | | | |
| 1928-37 (Av.) | 115.7 | 111.2 | 109.1 | 34.2 | 52.1 | 124 | 38.4 | 57.2 | 140 |
| 1938 | 102.4 | 99.8 | 98.0 | 38.7 | 58.4 | 148 | 39.2 | 57.2 | 150 |
| 1939 | 110.4 | 107.1 | 104.1 | 37.6 | 55.9 | 147 | 40.8 | 58.1 | 158 |
| South Atl. | | | | | | | | | |
| 1928-37 (Av.) | 60.1 | 57.3 | 55.0 | 41.0 | 51.6 | 142 | 23.5 | 28.3 | 81 |
| 1938 | 55.8 | 54.3 | 52.7 | 48.6 | 55.8 | 162 | 26.4 | 29.1 | 88 |
| 1939 | 59.9 | 56.2 | 53.3 | 47.5 | 54.8 | 161 | 26.4 | 29.0 | 90 |
| South Cent. | | | | | | | | | |
| 1928-37 (Av.) | 66.8 | 63.6 | 60.2 | 40.6 | 52.7 | 136 | 25.7 | 31.6 | 86 |
| 1938 | 59.3 | 58.5 | 56.1 | 44.9 | 57.1 | 156 | 26.4 | 31.8 | 90 |
| 1939 | 63.6 | 61.6 | 59.5 | 43.7 | 55.8 | 152 | 27.0 | 33.1 | 94 |
| Western | | | | | | | | | |
| 1928-37 (Av.) | 74.0 | 71.5 | 69.3 | 44.5 | 57.2 | 154 | 30.8 | 39.2 | 107 |
| 1938 | 71.1 | 69.5 | 67.0 | 43.5 | 57.7 | 163 | 29.9 | 38.6 | 112 |
| 1939 | 72.6 | 69.0 | 67.0 | 44.6 | 58.6 | 168 | 29.6 | 39.2 | 114 |
| United States | | | | | | | | | |
| 1928-37 (Av.) | 86.0 | 82.3 | 79.7 | 37.7 | 53.0 | 134 | 31.1 | 42.1 | 110 |
| 1938 | 77.6 | 75.8 | 73.8 | 42.2 | 57.9 | 155 | 32.5 | 42.5 | 118 |
| 1939 | 82.8 | 79.8 | 77.0 | 41.4 | 56.3 | 154 | 33.3 | 43.1 | 123 |

The decline in numbers of hens and pullets in farm flocks this year has been about equal to the usual seasonal decline. The number of layers on April 1 was about 4 per cent above a year ago but over 3 per cent below the 10-year average. Although the April 1 rate of laying was almost 3 per cent below the record high of last year it was above all other years. The aggregate layings per 100 layers for the first day of the 4 months, January to April, is only a fraction of 1 per cent below the aggregate of last year for the same months. Egg production on April 1 as indicated by the reported number of eggs laid per farm flock was over 1 per cent above a year ago. The aggregate egg production per farm flock indicated by the 4 monthly returns, January to April, is 4 per cent larger than for the same months in 1938 and is the largest of the record, which began in 1925. Farm holdings of young chickens on April 1 were about 4 per cent larger than last year and the highest for this date since 1927, when numbers were about the same.

The average number of hens and pullets of laying age in farm flocks belonging to crop correspondents on April 1 was 77.0 compared with 73.8 a year ago and the 10-year (1928-37) average of 79.7. Compared with a year ago increases were shown in all geographic areas with the exception of the Western States where there was no change and in the North Atlantic States where the decrease was about 2 per cent. In the West North Central States the increase was about 10 per cent, in the South Central States about 6 per cent, in the East North Central States about 2 per cent, and in the South Atlantic States about 1 per cent. Numbers of layers in all geographic areas were from 1 per cent below the 10-year average in the North Atlantic States to 7 per cent below in the West North Central States.

The rate of laying on April 1, with the exception of the record high of a year ago, was the highest in the 15 years of record for that date. The average number of eggs laid on April 1 per 100 layers in farm flocks was 56.3 compared with 57.9 a year ago and the 10-year (1928-37) average of 53.0. The aggregate laying per 100 layers indicated by the 4 monthly layers, January to April, is only about a half of 1 per cent smaller than for the same months in 1938, but it is over 15 per cent above the 10-year average and the largest on record with the exception of last year.

—Comment from Poultry and Egg Production Report.

## Egg Prices

**1939 Egg Prices at New York City**

| Kind | Apr. 7 | Apr. 14 | Apr. 21 | Apr. 28 | Apr. 28, '38 |
|---|---|---|---|---|---|
| Mixed Color Firsts | 19 -21 | 16½-17 | 17 -17½ | 16½-16¾ | 20½ |
| Nearby and Midwestern White Premium Marks | 21½-22½ | 21½-22½ | 21½-22½ | 20½-22 | 23½-25 |
| Nearby and Midwestern White Specials | 20½ | 20 -20½ | 20 -20½ | 20 | 22½-23 |
| Pacific Coast Specials | 26¾ | 26¼-27¾ | 26½-27¾ | 26½-27 | 26 -27 |
| Nearby and Western Brown Exchange Specials | 19 | 19 -19½ | 19 -19½ | 19½-20 | 22½-23¼ |

The trend of egg prices this month differs from that of April last year. Current prices (April 26) are about the same as on April 1, whereas last year, prices advanced during the month. Thus, while 1939 prices were only about a cent below a year earlier at the beginning of the month, they are now around 3 cents lower. This difference in price trends is accounted for in part by the different conditions which prevailed during the two periods. Last year, there was a marked falling off in receipts as the month progressed, whereas this year, the reverse is true. Marketings at country packing plants in April, 1938, were showing a downward tendency, and storage stocks were markedly lighter than the year before. Terminal market receipts in April, 1938, were also lighter than in the corresponding period of 1937, a condition which continued until mid-summer. By way of comparison with a decline of 2 to 3 cents per dozen which occurred in April, 1937, prices in 1938 advanced approximately the same amount. Uncertainty as to whether this year's (1939) prices will continue at about the present level during the storing period, or change to higher or lower levels, is due to the fact that at the moment we are at a stage of the current season where the production trend may change at most any time. So far there are no definite indications that the seasonal decline has started. On the other hand, market receipts through April 22 were still showing weekly increases. In addition to this, the fact that prices in relation to last year are now some 3 cents lower, has led to some speculation in the minds of those who normally store eggs, as to the possibility of Government buying. At the Cleveland meeting in February when the entire egg situation was reviewed, the feeling was expressed by producers that prices should not fall more than 1 cent below those of last year.

—Comment from Monthly Egg and Poultry Markets Review.

**Farm Prices of Eggs per Dozen**

(Figures given in cents)

| Year | Jan. 15 | Feb. 15 | Mar. 15 | Apr. 15 | May 15 | June 15 | July 15 | Sept. 15 | Nov. 15 |
|---|---|---|---|---|---|---|---|---|---|
| Average 1928-37 | 25.9 | 21.6 | 18.0 | 17.4 | 17.5 | 17.4 | 18.7 | 23.9 | 31.1 |
| 1937 | 23.1 | 20.1 | 19.9 | 20.1 | 17.9 | 17.6 | 19.4 | 22.9 | 28.0 |
| 1938 | 21.6 | 16.4 | 16.2 | 15.9 | 17.6 | 18.2 | 19.9 | 24.9 | 29.0 |
| 1939 | 18.8 | 16.7 | 16.0 | 15.5 | | | | | |

## Poultry Meat Prices

**Farm Prices of Chickens per Pound**

(Figures given in cents)

| Year | Jan. 15 | Feb. 15 | Mar. 15 | Apr. 15 | May 15 | June 15 | July 15 | Sept. 15 | Nov. 15 |
|---|---|---|---|---|---|---|---|---|---|
| Average 1928-37 | 15.1 | 15.4 | 15.7 | 16.4 | 16.3 | 16.1 | 15.8 | 16.0 | 14.9 |
| 1937 | 13.4 | 13.6 | 14.4 | 15.2 | 14.8 | 14.8 | 15.3 | 17.4 | 16.9 |
| 1938 | 16.7 | 16.0 | 15.9 | 16.2 | 16.1 | 15.7 | 15.0 | 14.3 | 13.6 |
| 1939 | 14.0 | 14.2 | 14.3 | 14.4 | | | | | |

## Receipts of Eggs and Poultry

**Receipts of Eggs at Eastern Egg Auctions**

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| April 1 | 26 | 30,096 | –3.02 | +15.08 |
| April 8 | 24 | 27,498 | –1.54 | +16.45 |
| April 15 | 25 | 27,812 | –5.70 | +20.61 |
| April 22 | 25 | 30,238 | +8.36 | +43.42 |
| April 29 | 25 | 32,353 | +4.06 | +24.33 |

**Receipts of Eggs at Pacific Coast Primary Markets**

| Week Ending | No. of Plants | Cases of Eggs | | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| | | 1939 | 1938 | | |
| April 1 | 62 | 71,639 | 80,442 | +1.50 | –10.93 |
| April 8 | 64 | 74,457 | 82,992 | –0.25 | –10.28 |
| April 15 | 63 | 73,405 | 83,940 | –0.59 | –12.55 |
| April 22 | 63 | 74,833 | 83,280 | +1.97 | –10.14 |
| April 29 | 63 | 75,015 | 84,505 | +0.24 | –11.23 |

### Receipts of Eggs and Poultry at Central Western Primary Markets

| Week Ending | Cases of Eggs 1939 | Cases of Eggs 1938 | % Chg. | Pounds of Poultry (000 omitted) 1939 | Pounds of Poultry (000 omitted) 1938 | % Chg. | Pounds of Young Stock (000 omitted) 1939 | Pounds of Young Stock (000 omitted) 1938 | % Chg. | Pounds of Fowl (000 omitted) 1939 | Pounds of Fowl (000 omitted) 1938 | % Chg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| April 1 | 250,984 | 237,074 | + 5.87 | 1,598 | 1,127 | +41.81 | Discontinued until quantities available are larger. | | | 1,393 | 976 | +42.70 |
| April 8 | 269,287 | 231,062 | +16.54 | 1,543 | 1,282 | +20.35 | | | | 1,309 | 1,104 | +18.58 |
| April 15 | 236,567 | 207,571 | +13.97 | 1,635 | 1,512 | + 8.10 | | | | 1,404 | 1,320 | + 6.41 |
| April 22 | 244,849 | 198,084 | +23.61 | 1,874 | 2,072 | − 9.57 | | | | 1,594 | 1,808 | −11.80 |
| April 29 | 268,123 | 203,857 | +31.53 | 2,207 | 1,838 | +20.10 | | | | 1,855 | 1,533 | +21.04 |

### Receipts of Eggs (Cases) at 4 Markets*

| Geographic sections | March 1939 | March 1938 | % change | Jan. to Mar., Inc. 1939 | Jan. to Mar., Inc. 1938 | % change |
|---|---|---|---|---|---|---|
| New England | 39,809 | 30,555 | + 30.28 | 115,735 | 87,819 | + 31.79 |
| Middle Atlantic | 225,834 | 185,617 | + 21.67 | 556,797 | 480,653 | + 15.84 |
| South Atlantic | 52,067 | 46,620 | + 11.68 | 93,371 | 86,469 | + 7.98 |
| East North Central | 344,622 | 347,563 | − 0.85 | 736,354 | 660,340 | + 11.51 |
| West North Central | 831,342 | 800,058 | + 3.91 | 1,763,903 | 1,567,983 | + 12.49 |
| South Central | 24,292 | 30,003 | − 19.03 | 32,202 | 53,831 | − 40.18 |
| Mountain | 17,078 | 54,910 | − 68.90 | 73,813 | 166,542 | − 55.68 |
| Pacific | 17,450 | 56,751 | − 69.25 | 72,937 | 205,917 | − 64.58 |
| Miscellaneous | 741 | 699 | + 6.01 | 1,418 | 1,510 | − 6.09 |
| TOTAL | 1,553,234 | 1,552,776 | + 0.03 | 3,446,530 | 3,311,064 | + 4.09 |

### Receipts of Dressed Poultry (Pounds) at 4 Markets*

| Geographic sections | March 1939 | March 1938 | % change | Jan. to Mar., Inc. 1939 | Jan. to Mar., Inc. 1938 | % change |
|---|---|---|---|---|---|---|
| New England | 525,525 | 594,263 | − 11.57 | 1,129,708 | 1,305,157 | − 13.44 |
| Middle Atlantic | 983,653 | 746,122 | + 31.84 | 2,442,395 | 1,580,212 | + 54.56 |
| South Atlantic | 1,278,778 | 746,357 | + 71.34 | 3,363,656 | 1,667,548 | +101.71 |
| East North Central | 3,262,856 | 1,620,521 | +101.35 | 9,718,788 | 4,996,418 | + 94.52 |
| West North Central | 8,342,978 | 5,129,038 | + 62.66 | 28,728,203 | 20,172,423 | + 42.41 |
| South Central | 1,911,891 | 2,107,815 | − 9.30 | 6,125,796 | 7,166,826 | − 14.53 |
| Mountain | 92,813 | 81,744 | + 13.54 | 1,426,406 | 1,162,413 | + 22.71 |
| Pacific | 697,252 | 716,311 | − 2.66 | 1,878,531 | 3,620,705 | − 48.12 |
| Miscellaneous | − | − | − | − | − | − |
| TOTAL | 17,095,746 | 11,742,171 | + 45.59 | 54,813,483 | 41,671,702 | + 31.54 |

* New York, Chicago, Philadelphia, and Boston.

An increase in the supplies of eggs at terminal markets since the middle of April has contributed to a tendency for egg markets to weaken somewhat. Even before any actual increases were noted, markets had been more or less irregular, for reports on production had given indications that heavier supplies were in prospect. Egg production on April 1 was at the highest level since 1930, according to the Bureau report for that date. Increased marketings since then have borne out the fact that layings have been relatively heavy this season. Interest in April storing has developed, but not with full confidence, because of unusual lack of certainty as to price trends.

The live poultry market has been slow during the month, with the tone about steady. Prices on most all classes at Eastern markets were slightly lower toward the close of the month than at the opening. Receipts at New York are apparently running at about the same volume as a year ago. At country packing plants in the Central West, however, receipts continue heavier than in 1938, which condition has existed since the last of February. Fowl constitute the bulk of the poultry now being marketed at those points. Unloads of dressed poultry at principal terminal markets are much heavier this year than last, the March increase alone at the four markets being 45 per cent, with arrivals from the North Central States showing an increase of 75 per cent. Figures available to date suggest that April receipts of dressed poultry will not show the same percentage increases as those of preceding months this year.

—Comment from Monthly Egg and Poultry Markets Review.

## Egg-Feed Ratios

### New York Egg-Feed Ratio

| Week Ending | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1939 | 1938 | 1937 | Avg. Egg Price per Doz. (Dollars) 1939 | 1938 | 1937 | Avg. Feed Cost per 100 lbs. (Dollars) 1939 | 1938 | 1937 |
|---|---|---|---|---|---|---|---|---|---|
| April 6 | 8.6 | 8.9 | 11.1 | .193 | .199 | .246 | 1.66 | 1.77 | 2.74 |
| April 13 | 8.9 | 8.4 | 11.1 | .193 | .213 | .244 | 1.73 | 1.78 | 2.72 |
| April 20 | 9.0 | 8.3 | 11.5 | .195 | .214 | .237 | 1.75 | 1.78 | 2.74 |
| April 27 | 9.0 | 8.3 | 11.9 | .195 | .215 | .232 | 1.75 | 1.78 | 2.76 |

### Chicago Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration 1939 | 1938 | 10-Yr. Av. 1929-38 | Price of Fresh Graded Firsts (Dollars) 1939 | 1938 | Cost of Ration per 100 lbs. (Dollars) 1939 | 1938 |
|---|---|---|---|---|---|---|---|
| April 1 | 6.35 | 6.70 | 6.62 | .162 | .173 | 1.032 | 1.165 |
| April 8 | 6.39 | 6.58 | 6.70 | .161 | .172 | 1.028 | 1.139 |
| April 15 | 6.55 | 6.70 | 6.79 | .160 | .171 | 1.048 | 1.150 |
| April 22 | 6.69 | 6.10 | 6.71 | .162 | .187 | 1.084 | 1.144 |
| April 29 | 6.65 | 5.85 | 6.66 | .162 | .193 | 1.081 | 1.132 |

## Poultry in Storage

### Storage Holdings of Frozen Poultry

| Kind | April 1 5-Year Avg. 1934-38 | April 1 1938 | March 1 1939 | April 1 1939 | % Change Apr. 38-Apr. '39 |
|---|---|---|---|---|---|
| | (Thousand Pounds) | | | | |
| Broilers | 9,654 | 6,252 | 9,289 | 7,420 | +18.6 |
| Fryers | 8,780 | 7,034 | 11,635 | 9,235 | +31.2 |
| Roasters | 20,914 | 15,794 | 26,718 | 20,906 | +32.3 |
| Fowls | 11,718 | 15,249 | 18,391 | 13,939 | − 8.5 |
| Turkeys | 20,527 | 20,123 | 26,958 | 22,369 | +11.1 |
| Ducks | 1,146 | 1,448 | 2,991 | 1,455 | + .4 |
| Miscellaneous | 12,571 | 12,919 | 20,247 | 15,641 | +21.0 |
| Total | 85,310 | 78,819 | 116,229 | 90,965 | +15.4 |

Stocks of frozen poultry in storage on April 1 were 91 million pounds, an increase of 11 million pounds over last year, and about 5½ million pounds more than the 1934-38 average for that date. In the 35 cities, the reduction of stocks during the first three weeks of the month was only slightly greater than the corresponding period during April 1938. At the present rate of movement total stocks on May 1 will likely approximate 70 million pounds. Last year stocks on May 1 were 60 million pounds.

—Comment from Monthly Egg and Poultry Markets Review.

## Eggs in Storage

**Storage Holdings of Eggs**

| Kind | April 1 5-Year Avg. 1934-38 | April 1 1938 | March 1 1939 | April 1 1939 | % Change Apr. '38-Apr. '39 |
|---|---|---|---|---|---|
| | | (Thousands) | | | |
| Shell Eggs (cases) | 1,248 | 1,303 | 165 | 1,094 | –16.0 |
| Frozen Eggs (lbs.) | 54,718 | 96,475 | 44,476 | 60,508 | –37.2 |
| Frozen Case Equivalent (cases)* | 1,563 | 2,756 | 1,271 | 1,729 | –37.2 |
| Total (cases) | 2,811 | 4,059 | 1,436 | 2,823 | –30.4 |

* Frozen eggs are converted on the basis of 35 lbs. to the case.

## Egg Breaking Operations

**Egg Breaking Operations During March, 1939**

| Commodity | Quantities reported to date for Mar. 1939 | Same firm comparisons | | |
|---|---|---|---|---|
| | | Mar. 1939 | Mar. 1938 | % change in 1939 |
| | Pounds | Pounds | | |
| Whole eggs (nothing added) | 4,907,865 | 4,907,865 | 5,158,735 | – 10 |
| Mixed eggs (plain) | 623,290 | 623,290 | 637,940 | – 10 |
| Mixed eggs (emulsions, also with sugar, salt, etc.) | 2,544,141 | 2,544,141 | 320,599 | +694 |
| Egg whites (all descriptions) | 9,516,837 | 9,516,837 | 7,027,707 | + 35 |
| Egg yolks packed: Without salt, sugar, etc. | 2,789,406 | 2,789,406 | 2,505,803 | + 11 |
| Egg yolks packed: With sugar | 3,461,451 | 3,461,451 | 2,688,961 | + 29 |
| Egg yolks packed: With salt | 1,949,254 | 1,949,254 | 1,284,280 | + 52 |
| Egg yolks packed: All yolk emulsions, including glycerine | 127,035 | 127,035 | 63,732 | + 99 |
| Total—pounds | 25,919,279 | 25,919,279 | 19,687,757 | + 32 |
| Total—case egg equivalent | 740,551 | 740,551 | 562,507 | |
| Number of firms reporting | 63 | 63 | 63 | |

## Hatchery Operations

**Eggs Set, Chicks Hatched, and Chicks Booked by Commercial Hatcheries**

| Geographic Section | No. of plants | Eggs set During March | | | Salable Chicks Hatched During March | | | Chicks Booked Apr. 1 for April or Later Delivery | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1939 | 1938 | % chg. | 1939 | 1938 | % chg. | No. of plants | 1939 | 1938 | % chg. |
| | | Thousands | | | Thousands | | | | Thousands | | |
| N. Eng. | 26 | 2,656 | 2,231 | +19 | 1,923 | 1,743 | +10 | 22 | 1,566 | 1,392 | +12 |
| Mid. Atl. | 54 | 4,228 | 3,726 | +13 | 2,421 | 2,063 | +17 | 52 | 2,357 | 1,855 | +27 |
| S. Atl. | 38 | 2,185 | 1,926 | +13 | 1,538 | 1,338 | +15 | 28 | 966 | 688 | +40 |
| E. N. Cent. | 146 | 12,292 | 10,741 | +14 | 5,921 | 5,166 | +15 | 113 | 4,158 | 3,760 | +11 |
| W. N. Cent. | 141 | 11,497 | 10,327 | +11 | 5,261 | 4,320 | +22 | 114 | 4,829 | 4,303 | +12 |
| S. Cent. | 38 | 2,459 | 2,189 | +12 | 1,555 | 1,457 | + 7 | 30 | 646 | 535 | +21 |
| Mountain | 18 | 1,587 | 1,379 | +15 | 823 | 737 | +12 | 16 | 916 | 567 | +61 |
| Pacific | 53 | 6,158 | 4,485 | +37 | 4,387 | 3,371 | +30 | 46 | 2,995 | 1,851 | +62 |
| U. S. | 514 | 43,062 | 37,004 | +16 | 23,829 | 20,195 | +18 | 421 | 18,433 | 14,951 | +23 |
| Jan.-Mar. Inc. | | 85,067 | 71,056 | +20 | 41,841 | 33,133 | +26 | | 59,096 | 47,180 | +25 |

## Egg and Poultry Exports and Imports

**Exports of Eggs and Poultry**

| Commodity | | March 1939 | March 1938 | Jan. to Mar., Inc. 1939 | Jan. to Mar., Inc. 1938 |
|---|---|---|---|---|---|
| Eggs in shell | (doz.) | 298,313 | 199,439 | 730,534 | 604,978 |
| Eggs and yolks, frozen, dried, or canned | (lbs.) | Not available | Not available | Not available | Not available |
| Live Poultry | (lbs.) | 14,317 | 8,878 | 30,860 | 20,625 |
| Dressed Poultry | (lbs.) | 149,669 | 131,524 | 442,787 | 320,390 |

**Imports of Eggs and Poultry**

| Commodity | | March 1939 | March 1938 | Jan. to Mar., Inc. 1939 | Jan. to Mar., Inc. 1938 |
|---|---|---|---|---|---|
| Eggs in shell | (doz.) | 29,193 | 13,339 | 102,982 | 52,010 |
| Whole eggs, dried | (lbs.) | 5,000 | 9,500 | 22,000 | 106,150 |
| Whole eggs, frozen | (lbs.) | 0 | 0 | 420 | 40 |
| Yolks, dried | (lbs.) | 1,150 | 11,100 | 37,325 | 170,850 |
| Yolks, frozen | (lbs.) | 40 | 74,250 | 11,230 | 241,090 |
| Egg Albumen, dried | (lbs.) | 60,191 | 64,200 | 189,183 | 245,974 |
| Egg Albumen, frozen | (lbs.) | 0 | 0 | 0 | 0 |
| Live Poultry | (lbs.) | 67,676 | 119,662 | 185,214 | 516,220 |
| Dressed Poultry | (lbs.) | 34,123 | 42,930 | 82,708 | 133,757 |
| Poultry, Prepared | (lbs.) | 76,169 | 58,097 | 310,809 | 256,079 |

## Poultry Canning Operations

**Poultry Canning Operations During March, 1939**

| Commodity | Quantities reported to date for Mar. 1939 | Quantities reported for Feb. 1939 | Same firm comparisons | | |
|---|---|---|---|---|---|
| | | | Mar. 1939 | Mar. 1938 | % change in 1939 |
| | Pounds | Pounds | Pounds | | |
| Dressed poultry canned or used in canning | 3,534,259 | 3,328.976 | 3,534,259 | 2,908,153 | +22 |
| Number of firms reporting | 21 | 20 | 21 | | |

### *Incubators Turned into Cold Storage Units*

With the aim of helping hatchery operators make year 'round use of their incubators, and also as an important step in maintaining the highest market quality of eggs during summer and fall months, the Smith Incubator Corporation of Bucyrus, Ohio, has perfected a cold storage unit for supplying refrigeration to Smith incubators. Hatcheries equipped with late Smith models can readily convert their hatching equipment into efficient cold storage rooms for handling market eggs between hatching seasons, as well as other perishable foods, such as cherries, berries, melons and tomatoes.

The change from an incubating unit to a cooling unit is simple. Egg trays are removed and a unit consisting of a refrigerating compressor and refrigerating coils is installed in place of the heat and moisture control equipment. The cost of turning a Smith incubator into an efficient cold storage plant is claimed to be very small compared with the cost of providing a similar volume of cold storage in any other way.

# RESULTS OF LAYING TESTS

Kauder's Pedigreed Leghorns at Storrs continue to set the pace at the head of all pens, but Mettler's Rhode Island Reds at Hunterdon, N. J., edged up a few points during the month and are just 25 points out of first place. Ford's Riverbank Farm's Reds at Maine hurdled five opponents and landed in third place. Nelson's Leghorns at Texas, in fourth position, are followed by Vans R. Otey's Reds at Florida, which overtook two competitors during March.

Mettler's Reds at Hunterdon captured the blue ribbon for the month by earning 384 points with 369 eggs. Rhode Island Reds entered by Donald Crooks at Storrs were close behind with 381 points.

The large number of hens tieing for the honor of being highest producer for March is of particular interest. No less than eight different tests had one or more birds laying 31 eggs good for 34.10 points in the 31 days. A. E. Guinn's White Leghorn at Georgia stretched her lead over other individuals during March, is more than eight points ahead of Weber Duck Farm's second place hen.

Guy A. Leader's Pennsylvania pen and Foreman Poultry Farm's Texas pen are running neck and neck in the White Leghorn division, although the Keystone State birds have a one-point lead over the entry in the Lone Star State's test. John A. Clear's Leghorn pen at Hunterdon leaped all the way from tenth place to fifth place in the breed during the month.

Rhode Island Reds at Storrs are on the warpath now and placed seven pens in the top 20 to April 1.

Hubbard Farms' New Hampshires at Storrs took the spotlight in this breed during March by jumping from sixth to second position.

Dryden Barred Rocks at Central New York sailed into first place in their breed, built up a margin of 42 points between themselves and Eben Wood's second high pen.

## Twenty Highest Pens, All Breeds, to April 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 1908 | 2041.85 | Storrs |
| Thomas Mettler | Rhode Island Red | 2001 | 2016.80 | Hunterdon, N. J. |
| Ford's Riverbank Farm | Rhode Island Red | 1981 | 1964.20 | Maine |
| Nelson's Leghorn Breeding Farm | White Leg. | 1846 | 1953.45 | Texas |
| Vans R. Otey | Rhode Island Red | 1859 | 1925.85 | Florida |
| Guy A. Leader | White Leghorn | 1884 | 1925.35 | Pennsylvania |
| Foreman Poultry Farm | White Leghorn | 1841 | 1924.45 | Texas |
| John A. Clear | White Leghorn | 1809 | 1916.95 | Hunterdon, N. J. |
| A. J. Williams | New Hampshire | 1862 | 1901.90 | Florida |
| Sand Springs Home Farm | White Leghorn | 1813 | 1900.30 | Texas |
| Dublin Poultry Farm | White Leghorn | 1873 | 1894.20 | Georgia |
| Woodlawn Farm | White Leghorn | 1762 | 1883.25 | Texas |
| Kauder's Pedigreed Leghorns | White Leghorn | 1808 | 1882.90 | Georgia |
| Erath Egg Farm | White Leghorn | 1816 | 1875.15 | Texas |
| Ralph W. Anderson | Rhode Island Red | 1759 | 1873.55 | Storrs |
| Booth Farms and Hatchery | White Leghorn | 1757 | 1871.30 | Oklahoma |
| J. J. Warren | Rhode Island Red | 1795 | 1855.05 | Passaic, N. J. |
| Kauder's Pedigreed Leghorns | White Leghorn | 1798 | 1854.10 | Georgia |
| Booth Farms and Hatchery | White Leghorn | 1790 | 1851.10 | Florida |
| Gulfkist Poultry Farm | White Leghorn | 1817 | 1849.60 | Florida |

## High Pen in Each Standard Test for March

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Thomas Mettler | Rhode Island Red | 369 | 384.60 | Hunterdon, N. J. |
| Donald L. Crooks | Rhode Island Red | 353 | 381.35 | Storrs |
| J. O. Coombs & Son | White Leghorn | 356 | 373.65 | Texas |
| Ford's Riverbank Farm | Rhode Island Red | 354 | 371.35 | Maine |
| J. J. Warren | Rhode Island Red | 341 | 369.30 | Pennsylvania |
| Dryden Poultry Breeding Farm | White Leghorn | 343 | 368.90 | Michigan |
| J. A. Hanson | White Leghorn | 338 | 359.70 | Arizona |
| R. O. Wagemaker | Rhode Island Red | 328 | 358.05 | Missouri |
| Dryden Poultry Breeding Farm | Barred Rock | 335 | 355.15 | Central New York |
| E. N. Larrabee | New Hampshire | 330 | 354.80 | Western New York |
| E. B. Parmenter | Rhode Island Red | 335 | 354.45 | Florida |
| Booth Farms and Hatchery | White Leghorn | 316 | 347.20 | Oklahoma |
| J. J. Warren | Rhode Island Red | 319 | 343.45 | Rhode Island |
| Sponenbergh Poultry Farm | White Leghorn | 316 | 337.90 | Passaic, N. J. |
| J. J. Warren | Rhode Island Red | 314 | 332.30 | New York State |
| Dublin Poultry Farm | White Leghorn | 308 | 328.50 | Georgia |

## High Pen in Each Breed to April 1—(182 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 1908 | 2041.85 | Storrs |
| Thomas Mettler | Rhode Island Red | 2001 | 2016.80 | Hunterdon, N. J. |
| A. J. Williams | New Hampshire | 1862 | 1901.90 | Florida |
| Dryden Poultry Breeding Farm | Barred Rock | 1716 | 1725.50 | Central New York |
| Lonnie Van Sant | Black Australorp | 1647 | 1722.90 | Arizona |
| Oscar W. Holtzapple | White Rock | 1637 | 1646.00 | Georgia |
| Colonial Poultry Farm | White Wyandotte | 1567 | 1631.80 | Texas |
| Ben G. Monroe | Ancona | 1439 | 1474.85 | Texas |
| Colonial Poultry Farm | White Minorca | 1268 | 1313.20 | Georgia |
| Lindstrom Poultry Farm | Buff Minorca | 1233 | 1234.35 | Missouri |
| Donald C. Chandler | Silver Laced Wyandotte | 1235 | 1199.35 | Maine |
| Raymond Murphy | White Giant | 1121 | 1193.20 | Missouri |
| Harry L. Phillips | Columbian Rock | 1149 | 1185.30 | Missouri |
| S. E. Raymond | Lamona | 1108 | 1177.70 | Storrs |
| Laclede Hatchery | Buff Orpington | 1029 | 986.95 | Florida |
| Wm. W. Lehman | Buff Leghorn | 980 | 975.60 | Pennsylvania |
| Blue Ribbon Farms | Rhode Island White | 927 | 941.90 | Texas |
| Cedarlaid Poultry Farm | Brown Leghorn | 1044 | 900.10 | Florida |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 848 | 883.40 | Maine |
| Hall Bros. Hatchery | Cross | 775 | 801.55 | New York State |

## High Pen in Each Standard Test to April 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 1908 | 2041.85 | Storrs |
| Thomas Mettler | Rhode Island Red | 2001 | 2016.80 | Hunterdon, N. J. |
| Ford's Riverbank Farm | Rhode Island Red | 1981 | 1964.20 | Maine |
| Nelson's Leghorn Breeding Farm | White Leg. | 1846 | 1953.45 | Texas |
| Vans R. Otey | Rhode Island Red | 1859 | 1925.85 | Florida |
| Guy A. Leader | White Leghorn | 1884 | 1925.35 | Pennsylvania |
| Dublin Poultry Farm | White Leghorn | 1873 | 1894.20 | Georgia |
| Booth Farms and Hatchery | White Leghorn | 1757 | 1871.30 | Oklahoma |
| J. J. Warren | Rhode Island Red | 1795 | 1855.05 | Passaic, N. J. |
| J. J. Warren | Rhode Island Red | 1735 | 1848.15 | Rhode Island |
| Ford's Riverbank Farm | Rhode Island Red | 1817 | 1847.50 | Michigan |
| Content Farms | White Leghorn | 1722 | 1763.65 | Central New York |
| Colonial Poultry Farm | New Hampshire | 1676 | 1708.50 | Arizona |
| R. O. Wagemaker | Rhode Island Red | 1593 | 1705.00 | Missouri |
| Foreman Poultry Farm | White Leghorn | 1687 | 1656.90 | New York State |
| J. J. Warren | Rhode Island Red | 1501 | 1581.85 | Western New York |

## High Hen in Each Standard Test for March

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 31 | 34.10 | Storrs |
| R. C. E. Wallace | Barred Rock | 31 | 34.10 | Oklahoma |
| Eben Wood | New Hampshire | 31 | 34.10 | Pennsylvania |
| Thomas Mettler | Rhode Island Red | 31 | 34.10 | Passaic, N. J. |
| Foreman Poultry Farm | White Leghorn | 31 | 34.10 | Texas |
| Clifton C. Hersey | Rhode Island Red | 31 | 34.10 | Western New York |
| John A. Clear | White Leghorn | 31 | 34.10 | Hunterdon, N. J. |
| E. B. Parmenter | Rhode Island Red | 31 | 34.10 | Georgia |
| Eben Wood | Barred Rock | 31 | 34.00 | Maine |
| Aseltine Poultry Farm | White Leghorn | 31 | 33.50 | Michigan |
| Foreman Poultry Farm | White Leghorn | 31 | 33.30 | Rhode Island |
| Gulfkist Poultry Farm | White Leghorn | 31 | 33.05 | Florida |
| Colonial Poultry Farm | Barred Rock | 30 | 33.00 | Missouri |
| E. B. Parmenter | Rhode Island Red | 30 | 33.00 | New York State |
| P. S. Dickey | White Leghorn | 30 | 32.85 | Arizona |
| Mapes Poultry Farm | Barred Rock | 30 | 32.70 | Central New York |

## High Hen in Each Breed to April 1—(182 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| A. E. Guinn | White Leghorn | 176 | 191.80 | Georgia |
| Weber Duck Farm | Rhode Island Red | 173 | 183.30 | Georgia |
| Dryden Poultry Breeding Farm | Barred Rock | 169 | 181.50 | Missouri |
| Colonial Poultry Farm | New Hampshire | 166 | 176.70 | Arizona |
| E. S. McSweeny | Black Australorp | 162 | 171.30 | Arizona |
| Lindstrom Poultry Farm | White Wyandotte | 155 | 168.90 | Georgia |
| Raymond Murphy | White Giant | 149 | 160.95 | Missouri |
| Pinecroft Poultry Farm | White Rock | 146 | 157.95 | Michigan |
| Colonial Poultry Farm | White Minorca | 134 | 141.10 | Georgia |
| S. E. Raymond | Lamona | 128 | 140.15 | Storrs |
| Missouri Valley Hatchery | Ancona | 127 | 136.80 | Oklahoma |
| Henry F. Waitt | Silver Laced Wyandottes | 135 | 136.35 | Maine |
| Blue Ribbon Farm | Rhode Island White | 122 | 132.20 | Texas |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 120 | 128.60 | Maine |
| Harry L. Phillips | Columbian Rock | 130 | 123.95 | Missouri |
| Lindstrom Poultry Farm | Buff Minorca | 128 | 121.80 | Rhode Island |
| Laclede Hatchery | Buff Orpington | 122 | 119.60 | Florida |
| Hall Bros. Hatchery | Cross | 107 | 115.95 | New York State |
| Cedarlaid Poultry Farm | Brown Leghorn | 123 | 114.85 | Florida |
| Missouri Valley Hatchery | Buff Leghorn | 122 | 110.50 | Maine |

## High Hen in Each Standard Test to April 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| A. E. Guinn | White Leghorn | 176 | 191.80 | Georgia |
| Nelson's Leghorn Breeding Farm | White Leg. | 169 | 183.90 | Texas |
| Kauder's Pedigreed Leghorns | White Leghorn | 168 | 183.40 | Storrs |
| Thomas Mettler | Rhode Island Red | 169 | 183.05 | Hunterdon, N. J. |
| Weber Duck Farm | Rhode Island Red | 167 | 182.95 | Michigan |
| George A. Pearce | Rhode Island Red | 169 | 182.45 | Passaic, N. J. |
| Dryden Poultry Breeding Farm | Barred Rock | 169 | 181.50 | Missouri |
| E. B. Parmenter | Rhode Island Red | 167 | 181.35 | Rhode Island |
| Gulfkist Poultry Farm | White Leghorn | 166 | 180.40 | Florida |
| Guy A. Leader | White Leghorn | 168 | 179.70 | Pennsylvania |
| Ford's Riverbank Farm | Rhode Island Red | 169 | 177.60 | Maine |
| Colonial Poultry Farm | New Hampshire | 166 | 176.70 | Arizona |
| Douglaston Manor Farm | Rhode Island Red | 160 | 171.80 | Western New York |
| Sand Springs Home Farm | White Leghorn | 159 | 171.30 | Oklahoma |
| J. J. Warren | Rhode Island Red | 151 | 164.55 | New York State |
| Dayton Poultry Farm | White Leghorn | 165 | 161.55 | Central New York |

## 20 Highest White Leghorn Pens in Country to April 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Kauder's Pedigreed Leghorns | 1908 | 2041.85 | Storrs |
| Nelson's Leghorn Breeding Farm | 1846 | 1953.45 | Texas |
| Guy A. Leader | 1884 | 1925.35 | Pennsylvania |
| Foreman Poultry Farm | 1841 | 1924.45 | Texas |
| John A. Clear | 1809 | 1916.95 | Hunterdon, N. J. |
| Sand Springs Home Farm | 1813 | 1900.30 | Texas |
| Dublin Poultry Farm | 1873 | 1894.20 | Georgia |
| Woodlawn Farm | 1762 | 1883.25 | Texas |
| Kauder's Pedigreed Leghorns | 1808 | 1882.90 | Georgia |
| Erath Egg Farm | 1816 | 1875.15 | Texas |
| Booth Farms and Hatchery | 1757 | 1871.30 | Oklahoma |
| Kauder's Pedigreed Leghorns | 1798 | 1854.10 | Georgia |
| Booth Farms and Hatchery | 1790 | 1851.10 | Florida |
| Gulfkist Poultry Farm | 1817 | 1849.60 | Florida |
| W. A. Seidel | 1745 | 1848.60 | Texas |
| Woodlawn Farm | 1773 | 1846.85 | Texas |
| Guy A. Leader | 1789 | 1845.05 | Storrs |
| Erath Egg Farm | 1777 | 1842.10 | Texas |
| I. Comer | 1780 | 1828.70 | Texas |
| Booth Farms and Hatchery | 1743 | 1828.15 | Florida |

## 20 Highest Rhode Island Red Pens in Country to April 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Thomas Mettler | 2001 | 2016.80 | Hunterdon, N. J. |
| Ford's Riverbank Farm | 1981 | 1964.20 | Maine |
| Vans R. Otey | 1859 | 1925.85 | Florida |
| Ralph W. Anderson | 1759 | 1873.55 | Storrs |
| J. J. Warren | 1795 | 1855.05 | Passaic, N. J. |
| D. I. Goodenough | 1749 | 1848.70 | Storrs |
| J. J. Warren | 1735 | 1848.15 | Rhode Island |
| Ford's Riverbank Farm | 1817 | 1847.50 | Michigan |
| J. J. Warren | 1709 | 1828.40 | Storrs |
| J. J. Warren | 1743 | 1811.65 | Storrs |
| J. J. Warren | 1712 | 1798.60 | Pennsylvania |
| L. D. Bartholomew | 1777 | 1791.95 | Storrs |
| R. E. & F. H. Kendrick | 1693 | 1788.75 | Rhode Island |
| George A. Pearce | 1808 | 1785.75 | Passaic, N. J. |
| Weber Duck Farm | 1782 | 1780.75 | Florida |
| Cane Poultry Farm | 1720 | 1780.60 | Hunterdon, N. J. |
| George A. Pearce | 1778 | 1775.80 | Hunterdon, N. J. |
| Homestead Farm | 1686 | 1766.00 | Storrs |
| Orin A. Bailey | 1721 | 1758.50 | Florida |
| Wene Chick Farms | 1719 | 1754.00 | Storrs |

## 20 Highest New Hampshire Pens in Country to April 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| A. J. Williams | 1862 | 1901.90 | Florida |
| Hubbard Farms | 1787 | 1814.35 | Storrs |
| Steelman Poultry Farms | 1723 | 1798.55 | Storrs |
| Thomas J. Harrold | 1804 | 1794.20 | Georgia |
| A. J. Williams | 1719 | 1784.50 | Florida |
| Eben Wood | 1709 | 1770.95 | Maine |
| W. H. Boulware | 1680 | 1730.45 | Florida |
| E. N. Larrabee | 1640 | 1721.15 | Storrs |
| Colonial Poultry Farm | 1676 | 1708.50 | Arizona |
| Del Rio Farm | 1602 | 1687.25 | Arizona |
| Fuzzydele Farms | 1562 | 1671.65 | Pennsylvania |
| Quimby School | 1739 | 1660.15 | Maine |
| Pine Top Poultry Farm | 1547 | 1659.60 | Georgia |
| James H. Horne | 1615 | 1657.00 | Maine |
| S. C. Houck | 1550 | 1595.10 | Pennsylvania |
| Stroehlein Brothers | 1572 | 1586.65 | Passaic, N. J. |
| W. H. Boulware | 1563 | 1562.00 | Georgia |
| Eben Wood | 1483 | 1554.90 | Passaic, N. J. |
| Pine Top Poultry Farm | 1441 | 1535.65 | Maine |
| James H. Horne | 1452 | 1534.45 | Storrs |

## 20 Highest Barred Plymouth Rock Pens in Country to April 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Dryden Poultry Breeding Farm | 1716 | 1725.50 | Central New York |
| Eben Wood | 1692 | 1683.15 | Maine |
| Dryden Poultry Breeding Farm | 1682 | 1658.85 | Pennsylvania |
| Dryden Poultry Breeding Farm | 1595 | 1643.60 | Missouri |
| Riley Poultry Farm | 1656 | 1628.00 | Michigan |
| Fuzzydele Farms | 1576 | 1609.35 | Storrs |
| David T. Cohen | 1419 | 1592.70 | Arizona |
| Chas. M. Lathrop | 1507 | 1587.10 | Passaic, N. J. |
| Riley Poultry Farm | 1553 | 1571.10 | Georgia |
| Riley Poultry Farm | 1492 | 1542.25 | Oklahoma |
| Weber Duck Farm | 1525 | 1531.90 | Florida |
| David T. Cohen | 1501 | 1530.40 | Central New York |
| Dryden Poultry Breeding Farm | 1533 | 1529.35 | Storrs |
| Booth Farms and Hatchery | 1616 | 1510.60 | Florida |
| Weber Duck Farm | 1554 | 1509.05 | Maine |
| Egyptian Hatchery | 1508 | 1507.95 | Missouri |
| Gulf Coast Hatchery | 1525 | 1501.45 | Florida |
| R. C. E. Wallace | 1457 | 1500.85 | Oklahoma |
| Chas. F. Eller | 1541 | 1499.50 | Florida |
| Weber Duck Farm | 1507 | 1499.00 | Georgia |

## 20 Highest White Plymouth Rock Pens in Country to April 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Oscar W. Holtzapple | 1637 | 1646.00 | Georgia |
| Homestead Farms | 1616 | 1594.35 | Pennsylvania |
| Kalerok Farm | 1455 | 1523.45 | Rhode Island |
| Riley Poultry Farm | 1567 | 1520.95 | Oklahoma |
| Albert C. Lawton | 1433 | 1500.95 | Rhode Island |
| Oscar W. Holtzapple | 1481 | 1484.35 | Pennsylvania |
| Tender Broiler Hatchery | 1453 | 1448.35 | Oklahoma |
| Booth Farms | 1398 | 1445.30 | Missouri |
| Homestead Farms | 1431 | 1437.65 | Storrs |
| Earl C. Dunham | 1405 | 1428.70 | Georgia |
| Quimby School | 1371 | 1426.65 | Rhode Island |
| T. S. Townsley | 1362 | 1405.30 | Georgia |
| Clyde Cochran's Hatchery | 1423 | 1373.60 | Oklahoma |
| Kalerok Farm | 1293 | 1348.45 | Storrs |
| E. A. Hirt | 1308 | 1339.05 | Maine |
| Kalerok Farm | 1293 | 1338.65 | Pennsylvania |
| E. A. Hirt | 1287 | 1334.30 | Storrs |
| Lewis Farms | 1336 | 1328.85 | Rhode Island |
| Faith Farm | 1324 | 1311.85 | New York State |
| Colonial Poultry Farms | 1318 | 1307.75 | Maine |

## Average Production in Each Test to April 1

| Test | No. Birds | Eggs Per Bird | Points Per Bird | Egg Wt. Per Doz. | Per Cent Mortality for Mar. | Per Cent Mortality to Apr. 1 |
|---|---|---|---|---|---|---|
| Texas | 910 | 113.37 | 116.07 | 24.5 | 1.86 | 8.79 |
| Arizona | 260 | 109.57 | 111.34 | 24.4 | 1.15 | 6.92 |
| Hunterdon, N. J. | 650 | 105.87 | 107.31 | 24.2 | 3.23 | 11.69 |
| Georgia | 1,300 | 108.43 | 106.51 | 23.5 | 1.92 | 12.15 |
| Pennsylvania | 1,131 | 103.23 | 105.19 | 24.4 | 1.94 | 7.25 |
| Storrs* | 1,300 | 102.06 | 104.28 | 24.4 | 1.92 | 7.61 |
| Passaic, New Jersey | 1,001 | 102.71 | 103.28 | 24.1 | .99 | 6.99 |
| Florida | 1,248 | 102.88 | 102.05 | 23.8 | 1.84 | 9.37 |
| Oklahoma | 650 | 97.02 | 98.32 | 24.2 | 1.07 | 8.46 |
| Rhode Island | 650 | 92.51 | 96.26 | 24.9 | 3.38 | 10.76 |
| Michigan | 897 | 93.88 | 95.49 | 24.4 | 2.22 | 10.92 |
| Western New York | 884 | 90.37 | 90.69 | 24.0 | 1.13 | 4.86 |
| Maine | 1,027 | 86.45 | 85.85 | 23.8 | 3.60 | 15.09 |
| Central New York | 910 | 84.32 | 85.17 | 24.2 | 1.53 | 6.15 |
| Missouri | 780 | 81.15 | 84.26 | 24.9 | 2.81 | 14.10 |
| New York State* | 1,222 | 83.74 | 82.53 | 23.6 | 2.04 | 9.82 |
| All Tests | 14,820 | 97.20 | 98.02 | 24.2 | 2.04 | 9.49 |

* One week behind other tests in opening because of hurricane.

## High Pen, Each Breed, in Illinois Non-Standard Test to April 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Egyptian Hatchery | White Leghorn | 1001 | 1026.85 |
| Egyptian Hatchery | Barred Rock | 901 | 891.55 |
| Curtis Manshak | White Rock | 820 | 830.75 |
| Corn Belt Hatchery | New Hampshire | 719 | 774.30 |
| Illinois Hatchery | Rhode Island Red | 669 | 725.40 |
| Macomb Hatchery | Buff Orpington | 554 | 561.70 |
| Belldear Hatchery | White Wyandotte | 567 | 555.65 |
| Wallace Moody | Buff Rock | 417 | 406.95 |
| H. R. Harnes | Brown Leghorn | 437 | 400.20 |

## 5 High Pens, R. O. P. Progeny Test, Paterson, N. J., to April 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Wegatepa Farms | Rhode Island Red | 1990 | 2002 |
| Stroehlein Brothers | White Leghorn | 1858 | 1925 |
| E. B. Parmenter | Rhode Island Red | 1828 | 1902 |
| Oak Knoll Poultry Farm | White Leghorn | 1823 | 1811 |
| R. A. Hopkinson | White Leghorn | 1686 | 1751 |

## High Pen, Each Breed, Vineland, N. J., Hen Test to April 1

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Dembro Poultry Farm | White Leghorn | 1008 | 1102 | Two-Year |
| J. J. Warren | Rhode Island Red | 813 | 885 | Two-Year |
| Nedlar Farm | New Hampshire | 747 | 811 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 576 | 628 | Two-Year |
| J. A. Hanson | White Leghorn | 682 | 743 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 614 | 665 | Four-Year |
| Raymond Gardner | White Rock | 203 | 220 | Four-Year |

## High Pen, Each Breed, Vineland, N. J., Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| J. J. Warren | Rhode Island Red | 4719 | 5105 | Two-Year |
| Sebold Poultry Farm | White Leghorn |  | 4738 | Two-Year |
| Nedlar Farm | New Hampshire | 4379 | 4708 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 3619 | 3821 | Two-Year |
| J. A. Hanson | White Leghorn | 6586 | 7084 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 9278 | 9782 | Four-Year |
| Raymond Gardner | White Rock | 5155 | 5463 | Four-Year |

## High Pen, Each Breed, in Pennsylvania Hen Test to April 1

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| John Schrope | White Leghorn | 1308 | 1422 | Two-Year |
| E. B. Parmenter | Rhode Island Red | 892 | 977 | Two-Year |
| Fuzzydele Farms | New Hampshire | 870 | 951 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 853 | 930 | Two-Year |
| Fuzzydele Farms | Barred Rock | 839 | 916 | Three-Year |
| A. M. Wolgemuth | White Leghorn | 669 | 728 | Three-Year |

## High Pen, Each Breed, in Pennsylvania Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Fuzzydele Farms | White Leghorn | 4724 | 5046 | Two-Year |
| E. B. Parmenter | Rhode Island Red | 4228 | 4462 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 4023 | 4258 | Two-Year |
| Fuzzydele Farms | New Hampshire | 3944 | 4138 | Two-Year |

* * *

## *Among Our Contributors*

**Horace W. Dryden** (p. 260) is a son of the late James Dryden who, while head of the Oregon State Agricultural College, succeeded in trapping the first 300-egg hen on record in the world, a White Leghorn, "Lady Macduff," with a record of 303 eggs.

Upon the death of his father in 1935, Horace, who is a graduate of Stanford University, took over the management of the Dryden Poultry Breeding Farm established in 1921. This farm, covering 110 acres just outside of Modesto, Calif., is considered one of the largest pedigree poultry breeding plants in the world, having 10,000 mature individually pedigreed birds on the plant.

Dryden White Leghorns and Barred Rocks have made noteworthy records in the laying tests, in 1938, winning the Poultry Item trophy for having the highest five-pen average of any breeder in the standard laying tests.

**Morley A. Jull** (p. 263) was chief poultry husbandman for the U. S. Department of Agriculture from 1923 to 1936 when he resigned to become head of the poultry department of the University of Maryland, College Park, Md. During his work with the government, he developed the most extensive poultry research plant to be found anywhere in the world. In that period, more than 170 of his popular an scientific articles on poultry wer published.

Dr. Jull received his bachelor's degree from the University of Toronto his master's degree from McGill University, and his doctor's degree from the University of Wisconsin. He was with the West Virginia Experiment Station in 1908, going to the British Columbia Department of Agriculture in 1909, then to McGill University (Macdonald College) in 1912 where he remained until 1923. His books, "Poultry Husbandry" and "Poultry Breeding," are used widely as texts.

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Considering the fact that only a few mailings have been made and relatively little advertising has been employed, the progress to date is very gratifying. Many of the new readers who have joined our ranks in recent weeks have done so upon the recommendation of other subscribers. We look upon this as a healthy indication.

Because our subscription growth will have to come about largely through word-of-mouth advertising and selective mailings, we will appreciate any help which present subscribers can give us either through the mention of the Digest or by sending us the names and addresses of prospective subscribers.

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NATIONAL POULTRY DIGEST
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Vol. 1, No. 6 June, 1939

**Egg Quality is Bound to Drop When . . .**

## Eggs Get Thirsty

By J. C. Huttar
Cooperative G. L. F. Exchange, Inc.

*Condensed from American Agriculturist*

IN the winter Nearby eggs are usually poorer than at any other time of year in a market like New York. Write that down and tack it up in the egg room next fall.

I'm not sure that I know the full and real explanation for such a state of affairs. It may have something to do with the notion some folks have that only hot weather hurts egg quality. Or it may be that some folks just can't imagine eggs getting over-heated in the winter time. As a matter of fact, temperatures below 35 degrees in the egg holding room have about the same effect on egg quality as those over 70 degrees after six or eight hours. Also, furnace heat in the cellar or stove heat in the kitchen has the same effect as sun heat in the summer.

### Lack of Humidity Often to Blame

I just said it may be this, or it may be that, which makes Nearby egg quality go down every winter. But I really think that water is more often to blame than anything else.

I've seen eggs "settin" in the back room when it was pretty cold out there. I've gone into cellars where the furnace was doing its duty in keeping the folks upstairs warm and incidentally warming up and drying out

American Agriculturist, Savings Bank Bldg., Ithaca, N. Y.
(American Agriculturist, April 1, 1939)

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INTENTIONAL 2ND EXPOSURE

the cellar where the eggs were being held. I've seen folks cleaning and grading their eggs in the kitchen.

So write this down too:

"In the winter of 1939-'40 I will have a place to keep my eggs between laying time and shipping time where the temperature will not get below 35 degrees nor above 60 degrees and I will have enough moisture in this place to keep them from drying out."

A lot of egg producers are beginning to believe that water has quite a bit to do with egg quality, but some of them haven't done anything about it yet.

An egg consists of 65 per cent water, 10 per cent shell, and 25 per cent other dry matter. The white of the egg, which is just inside the shell is about 87 per cent water. There is a close connection between this water in the egg white and the condition of that white. When a normal egg is laid it has a layer of thick white around the yolk. As the egg loses water this layer softens and thins out. High or low temperatures or a lot of rough handling will have the same effect.

The thickness or thinness of this layer of egg white has more to do with the candling appearance of an egg, and so with the value of that egg, than anything else.

The shell of an egg is porous; some shells are more porous than others. That's why you have to think about water in your egg room.

### Keep the Floor Wet

Dirt floors are usually moist enough, but not always. Cement floors tend to be pretty dry. This can be remedied by sprinkling the floor daily in the egg room. Or shallow water pans with large evaporating surfaces may be placed on the floor and kept filled. Water pans with an electric fan blowing over them is another way.

The way we used to do it on the farms in Jersey was to put a pan of water on the cellar wall in the window of the egg room. The window was shaded from the sun and was always open, except in real cold weather. About a foot of one end of a half a bed sheet (an old one ripped in two) was immersed in the water and the rest was brought up toward the floor joists and into the room as far as it went. The sheet acted like a wick. The air coming in the window blew over it and through it. The eggs kept nice.

### Bed of Moist Sand Helps

One of the easiest and best ways to get moisture to the eggs as they need it is by means of a bed of sand. Here's how:

Make a rack big enough to hold a day's production without having the eggs more than two high anywhere. The rack is just a frame of four sticks of wood with one-half inch hardware cloth tacked to them. This rack can be supported by saw horses or any other bracing you like about two or three feet off the floor. (Lower is better for the eggs but unhandy to work). Directly under the rack you have a three inch bed of clean sand. You then keep the sand damp at all times.

Now you bring the eggs in from the hen house at least three times each day in wire pails or wicker baskets and put them on the floor near your rack. That evening move the eggs from the baskets to the rack, cleaning those that are soiled as you do it. (It's easier to clean eggs the day they're laid). The next morning, grade and pack those eggs into cases that have been kept near your sand bed for several days so that they won't be too dry.

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# Farm Production and Disposition of Chickens and Eggs — 1938

By S. A. Jones and E. Smith Kimball
U. S. Bureau of Agricultural Economics

*Condensed from Mimeographed Report*

APPROXIMATELY 412,647,000 chickens were reported in farm flocks in the United States on January 1, 1939. This was a recovery of about 7 per cent from the 386,573,000 chickens on hand January 1, 1938, the lowest level of chicken numbers in the 15-year record. January 1 numbers this year were still about 1 per cent below the average level of the 5 years 1933-37 and almost 6 per cent lower than the 10-year (1928-37) average of 436,897,000 birds. Increases the past year occurred in all states except a few in the Far West. Recovery in numbers was greatest in the West North Central States where reductions during the recent drought years had been most extreme.

The total value of chickens on farms on January 1 this year was $288,625,000. This value was about 1 per cent less than that on January 1, 1938, and about 23 per cent above the 5-year January 1 average, but it was about 4 per cent below the 10-year average.

### 12% Increase in Chickens Raised

About 646,700,000 chickens were produced on farms during 1938. This was about 12 per cent above the 1937 production, but it was 2 per cent below the 5-year (1932-36) average and 3 per cent below the 10-year (1927-36) average production. Increases over 1937 occurred in all areas except the Far West, with the greatest increases in the West North Central States.

The total value of chickens produced in 1938 was $372,836,000, which is about 19 per cent above the 5-year average, but about 8 per cent below the 10-year average value. The increase of 12 per cent in chicken production in 1938 compared with 1937 was more than enough to offset the 7 per cent decrease in price per head, resulting in an increase of about 4 per cent in the value of chickens produced during the past year.

A total of 380,498,000 chickens were sold from farms in 1938 in comparison with 378,817,000 in 1937. The volume of sales in both years was far below the 5-year average level of 416,207,000 or the 10-year average of 430,693,000.

The value of chickens sold in 1938 was $225,815,000, which compares with $240,650,000 for chickens sold in 1937. Slightly more birds were sold than in 1937, but at lighter weights and a lower average price per head. The average value of sales for the 5 years (1932-36) was $200,093,000 and for the 10 years (1927-36) $264,848,000.

### Farm Poultry Consumption Up

The consumption of chickens in the households of farm chicken producers in 1938 was approximately 240,128,000, or over a third of the chickens produced on farms that year. This con-

Mimeographed Report, "Farm Production and Disposition Chickens and Eggs, 1937-1938" Issued March, 1939, by U. S. Department of Agriculture, Washington, D. C.

sumption was slightly below the 10-year average of 241,817,000 but it was above the consumption of 232,568,000 in 1937. Of the total consumption by farm producers in 1938 the South Central States utilized 30 per cent and the West North Central States 24 per cent.

### Laying Rate Makes Up for Fewer Layers

About 36,998 million eggs were produced on farms in the United States in 1938. Although the number of layers on farms at the beginning of the year was about 7 per cent below the number a year earlier and the smallest in the 14 years, a record high rate of laying brought total egg production up to within 2 per cent of the 1937 production which stands as the high record for this series of years. Production in 1938 was 7 per cent above the 5-year average and 1 per cent above the 10-year average production. An increased rate of laying per hen was shown in all except a few of the Far Western States. This gain in rate of laying was most marked in the West North Central and South Central States. These two areas also showed gains in total egg production of about 3 per cent each over 1937, whereas all other major geographic areas showed decreases in production.

The value of eggs produced on farms in 1938 was $617,683,000 compared with $661,121,000 in 1937. The 5-year average value was $512,767,000 and the 10-year average $652,858,000.

About 27,962 million eggs were sold by these farm producers in 1938 compared with about 28,896 million in 1937. The 10-year average sales were 28,126 million and the 5-year (1932-36) average was 26,202 million. Of the total sales in 1938 the West North Central Division supplied about 6,902 million and the East North Central 6,643 million. The entire South supplied approximately 6,081 million, the North Atlantic 4,878 million and the Far West 3,458 million eggs.

### Average Egg Price Lower

The average price per dozen for eggs sold was lower in 1938 than in 1937 in all geographic areas except the Western States, where it was slightly higher in 1938. For the United States the average price was 20.3 cents in 1938 compared with 21.3 cents in 1937, with 18 cents during the 5-year depression period and with 21.7 cents during the 10-year period. The highest prices during 1938 were reported from the North Atlantic States which had an annual average price of 27.2 cents per dozen, while the lowest prices were reported from the West North Central States where the average annual price was 16.6 cents per dozen.

Consumption of eggs in the households of farm producers is estimated at 8,432 million for 1938, about 3 per cent greater than in 1937 and about 10 per cent greater than the 10-year average. This consumption by farm producers was equal to approximately 23 per cent of their total production.

### Per Capita Production Below Average

The per capita production of chickens in the United States in 1938 was 21.1 pounds compared with 19.6 in 1937, with 21.9 the 5-year (1932-36) average and with 22.4 pounds the 10-year (1927-36) average. In the West North Central States, the largest surplus producing area, 56.8 pounds of chickens were produced per capita, while in the North Atlantic States, the largest deficit area, only 10.0 pounds were produced per capita.

Per capita production of eggs in the United States in 1938 was 39.1 pounds compared with 40.0 pounds in 1937, the 5-year average of 37.7 pounds and the 10-year average of 40.7 pounds. As with chicken production the largest per capita production of eggs (89.6 pounds) was in the West North Central States and the smallest (21.0 pounds) was in the North Atlantic States.

### Less Chicken Eaten

The consumption of 20.2 pounds of chickens per capita in the United States in 1938 was the smallest of record in the 14-year period compared with 21.2 pounds in 1937, with 21.9 pounds the 5-year average and with 22.6 pounds the 10-year average. While the per capita production of

### Production of Chickens and Eggs in the United States

| State | Chickens on Farms Jan. 1, 1939 | Value of Chickens on Farms, Jan. 1, 1939 | Value of Eggs Produced in 1938 | Value of Chickens Produced in 1938 |
|---|---|---|---|---|
| Maine | 1,757,000 | $ 2,038,000 | $ 5,543,000 | $ 2,951,000 |
| New Hampshire | 1,392,000 | 1,587,000 | 4,503,000 | 3,061,000 |
| Vermont | 840,000 | 932,000 | 2,449,000 | 1,198,000 |
| Massachusetts | 2,952,000 | 3,424,000 | 11,336,000 | 7,073,000 |
| Rhode Island | 331,000 | 377,000 | 1,093,000 | 842,000 |
| Connecticut | 2,310,000 | 2,633,000 | 7,929,000 | 5,044,000 |
| New York | 14,030,000 | 14,030,000 | 36,498,000 | 14,028,000 |
| New Jersey | 5,830,000 | 6,530,000 | 15,121,000 | 9,058,000 |
| Pennsylvania | 19,317,000 | 18,158,000 | 41,466,000 | 20,006,000 |
| Ohio | 20,888,000 | 16,293,000 | 34,748,000 | 20,104,000 |
| Indiana | 16,029,000 | 11,541,000 | 22,234,000 | 17,908,000 |
| Illinois | 22,439,000 | 15,932,000 | 28,183,000 | 23,791,000 |
| Michigan | 11,905,000 | 10,000,000 | 21,823,000 | 11,642,000 |
| Wisconsin | 15,484,000 | 11,613,000 | 28,044,000 | 10,536,000 |
| Minnesota | 18,501,000 | 10,731,000 | 24,621,000 | 14,507,000 |
| Iowa | 30,172,000 | 20,215,000 | 34,439,000 | 27,413,000 |
| Missouri | 21,127,000 | 12,465,000 | 24,040,000 | 16,183,000 |
| North Dakota | 3,816,000 | 2,061,000 | 3,703,000 | 3,331,000 |
| South Dakota | 6,790,000 | 3,938,000 | 6,615,000 | 6,233,000 |
| Nebraska | 12,624,000 | 7,574,000 | 13,154,000 | 12,015,000 |
| Kansas | 15,434,000 | 8,643,000 | 18,684,000 | 11,431,000 |
| Delaware | 1,129,000 | 1,016,000 | 2,053,000 | 5,508,000 |
| Maryland | 3,779,000 | 3,250,000 | 6,375,000 | 5,532,000 |
| Virginia | 9,914,000 | 7,336,000 | 14,692,000 | 11,908,000 |
| West Virginia | 4,286,000 | 2,957,000 | 7,245,000 | 3,300,000 |
| North Carolina | 9,829,000 | 7,077,000 | 12,172,000 | 10,087,000 |
| South Carolina | 4,711,000 | 3,298,000 | 4,592,000 | 4,669,000 |
| Georgia | 8,143,000 | 5,049,000 | 8,897,000 | 6,787,000 |
| Florida | 2,495,000 | 1,921,000 | 4,236,000 | 1,991,000 |
| Kentucky | 11,128,000 | 6,120,000 | 12,080,000 | 11,040,000 |
| Tennessee | 10,998,000 | 6,599,000 | 11,277,000 | 8,818,000 |
| Alabama | 8,118,000 | 4,546,000 | 8,384,000 | 5,364,000 |
| Mississippi | 7,642,000 | 4,050,000 | 8,144,000 | 5,228,000 |
| Arkansas | 8,879,000 | 4,173,000 | 8,140,000 | 7,418,000 |
| Louisiana | 5,139,000 | 3,083,000 | 4,380,000 | 4,092,000 |
| Oklahoma | 11,455,000 | 5,728,000 | 12,351,000 | 7,738,000 |
| Texas | 24,535,000 | 13,004,000 | 27,472,000 | 12,723,000 |
| Montana | 2,048,000 | 1,495,000 | 3,359,000 | 2,022,000 |
| Idaho | 2,397,000 | 1,750,000 | 3,939,000 | 1,636,000 |
| Wyoming | 829,000 | 547,000 | 1,230,000 | 756,000 |
| Colorado | 3,800,000 | 2,280,000 | 5,146,000 | 3,070,000 |
| New Mexico | 1,071,000 | 653,000 | 1,682,000 | 658,000 |
| Arizona | 572,000 | 492,000 | 1,456,000 | 550,000 |
| Utah | 2,204,000 | 1,455,000 | 5,436,000 | 832,000 |
| Nevada | 225,000 | 180,000 | 515,000 | 158,000 |
| Washington | 5,383,000 | 4,576,000 | 14,420,000 | 2,649,000 |
| Oregon | 2,834,000 | 2,409,000 | 6,372,000 | 1,617,000 |
| California | 15,136,000 | 12,866,000 | 35,412,000 | 8,330,000 |
| United States | 412,647,000 | $288,625,000 | $617,683,000 | $372,836,000 |

chickens was about 8 per cent greater in 1938 than in 1937, the per capita consumption was about 5 per cent less. This seeming inconsistency was due to the fact that in 1937 heavy sales of hens resulted from the feed shortage, while in 1938 the reverse condition of cheap feed and a large hatch led to lessened sales of laying stock and to greatly increased sales of light young birds.

In 1938 the per capita consumption of eggs was 38.3 pounds, compared with 38.0 pounds in 1937, 36.2 the 5-year average and 39.1 pounds the 10-year average.

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## *Making Them Crow for the Movies*

Did you ever try to make a stubborn rooster crow just when you wanted him too? Well, movie directors have tried it—many times, and the story of how they finally succeeded is just about as simple as the natural crow itself.

In the earlier days of the movies, directors attempted to put it over on the public by using a dummy rooster to produce what they figured would be the desired effects. But the public detected this "faking", and when a director was thoroughly taken to task in several letters for attempting such "fake" thereby inferring that the public was dumb, the movie boys got their heads together and got to work.

When they disbanded, they called in a man who had an international reputation for making animals act. After some consideration of the matter, he decided to conduct a series of trials. They all proved to no avail. The roosters simply would not crow when the cameras clicked. Many thousands of feet of film were wasted, with no rooster crowing on a film. Then one morning, he accidently came upon his row of cooped roosters just as one of them had broken out. At first, he was going to call a caretaker to catch the fowl, but it strutted from coop to coop, stretched his wings, flapped them vigorously and let loose a crow that resounded through the building.

The director placed the rooster back in the coop and wondered about it. In a hour he returned and let out the rooster again. Again the clarion call of the avian male went forth forthwith. He tried it again and again. He tried it with the others. They all crowed.

However, when the roosters were confined to other coops the crowing ceased. The director brought them back, studied them for several days, wondering what made them crow when confined to these coops and not others, then hit on the idea that the reason was because of the lowness of the first coops, for to crow, the male must have his head up and stretched out.

So, nowadays, when a film is shot which requires the crowing of a rooster, the one to do the act is simply kept in a low coop. Thus when ready to shoot the film, the director simply orders his release from the coop at the right time, and the rooster obligingly gives a most lusty crow.

—Emil G. Glaser in American Poultry Journal, March 1939.

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# Possible 1939 Earnings of a One-Man Poultry Farm

By John E. Brockett
County Agent, Atlantic County, N. J.

*Condensed from New Jersey Farm and Garden*

FOR several years, an attempt has been made to set up a group of figures to represent the prospects for income from the poultry business in New Jersey. Atlantic County poultrymen have furnished opinions that have been correlated with statistics supplied by the New Jersey Agricultural Extension Service. From this, conclusions have been drawn and predictions made as to the income possibilities for poultrymen in this area.

While actual results have varied from figures used in the forecasts, the net results on actual records kept have been close enough to the predictions to indicate that the attempt is well worthwhile. A year ago, for example, it was predicted that eggs would average 29 cents a dozen for all sold during the year from October 1, 1937, to September 30, 1938. Actual records on some 20,000 pullets and hens in local flocks showed a return of 28½ cents a dozen. Feed cost per layer was estimated at $1.80 and on these same birds actual cost was $1.79 a bird.

The purpose of this forecasting is to serve as a guide for established poultrymen so that they will set up their own figures, thereby, determining whether they are losing out or wasting money in some manner. Comparisons can be made on any size of flock to get the real answer. In addition, it is hoped that the figures might reach misinformed individuals who were considering entering the poultry business on the assumption that real estate promoters always tell the truth.

How about this year? Read the table as set up. Then check it with the explanations given and finally put in your own figures and see just where you are heading.

### The Budget Explained

The budget figures were based on the poultry year—October 1, 1938, to September 30, 1939. Taking the period, March 1, 1939, to March 1, 1940, it is estimated that the price per dozen for all eggs produced would average 28½ cents instead of 30 cents, as is estimated for the year from October 1, 1938, to September 30, 1939. This would reduce the income by $225 and would make the farm income per bird 65 cents instead of 80 cents for the period.

### Careful Culling is Important

Out of the 500 hens and 1,000 pullets, you can expect to lose 175 birds and cull 825 during the year. The better job that is done on culling, the lower the number that will be lost through death. The average number on the farm for the year is about 1,192. Each layer will eat about 90 pounds of feed. Combining grain, mash and miscellaneous feeds, the price should not average more than $1.90 per hundred pounds or about

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(New Jersey Farm and Garden, April, 1939)

$1.75 a bird. The pullets will eat about 24 pounds of feed before maturing. Their feed cost will average $2.10 per hundred pounds, or it will cost about 50 cents each for feed to raise the 1,000 pullets. Broilers eat more mash than grain, but will eat only about 5½ pounds of all feed if they are sold at 1½ pounds of weight. Their feed cost will be about 12 cents each. If you keep the broilers to greater weight, they eat more feed, but should offset this by bringing a greater return.

The mortality factor could upset this materially. If chick mortality runs above 10 per cent or layer mortality runs above 12 per cent, there is a problem that needs correcting. If the feed costs are out of line, there may be a need of some refinancing or perhaps the feed is being wasted out of hoppers or by rats and mice. Perhaps the ration being fed is too complicated with costly ingredients. You have to buy efficiently and you cannot spend money for high-priced quack remedies or fancy gadgets if you are going to stay within this budget.

The number of eggs that will be sold depends on many things. Poor stock, mismanaged birds and birds that die or have to be culled do not help make efficient production. One hundred and twenty marketable eggs a bird is not too much to expect, but that figure is multiplied by the number of birds housed at the beginning of the poultry year. It means that low mortality as well as steady production is essential.

### Maintain an Efficient Unit

What will New Jersey poultrymen do now? Should they increase flock size, curtail, or maintain the same size flock as they had last year? The answer to commercial operators is to raise enough chicks to replace the unprofitable layers and maintain the plant as an efficient unit. Some men can care for more birds well, but many times the plant becomes inefficient when more are carried because small details are neglected. It takes more than 1,500 layers to support a family and provide for a hired man. On the other hand, the farm labor income decreases to a low point if fewer than 1,500 layers are kept unless the poultry products are retailed or there is income from more than market eggs, culls, and the by-product broilers.

## Budget of a "One-Man" Poultry Farm

### For Poultry Year, October 1, 1938—September 30, 1939
### 500 Hens and 1,000 Pullets

| Expenses | | Receipts | |
|---|---|---|---|
| Taxes | $ 115.00 | Eggs, 15,000 doz. 30¢ | $4,500.00 |
| Interest on Borrowed Money | 180.00 | Culls, 825 at 40¢ | 330.00 |
| Insurance, fire and car | 75.00 | Broilers and cull pullets | |
| Feed-layers 90 lbs. ea. $1.90 cwt. | 2,090.00 | 1½ lbs. ea., 1,200 at 16¢ | 285.00 |
| Feed-pullets-24 lbs. ea. $2.10 cwt. | 500.00 | Manure and cleanings | 75.00 |
| Feed-broilers-5½ lbs. ea. $1.20 cwt. | 150.00 | | |
| Baby chicks 2,500 at 13¢ | 325.00 | Gross income | $5,190.00 |
| Egg cases, 500 at 16¢ | 80.00 | **Total Farm Income** | $5,190.00 |
| Coal for eight stoves | 50.00 | **Total Farm Expense** | $3,990.00 |
| Electricity | 100.00 | | |
| Repairs | 100.00 | **Net Income** | $1,200.00 |
| Litter | 125.00 | **Income per bird** | $ .80 |
| General expenses | 100.00 | | |
| Total Farm Expenses | $3,990.00 | | |

A commercial poultryman cannot afford to be an "in-and-outer." He must operate to capacity, taking the lean and fat as they come. High average production, low mortality and economical operation must be his objectives. Today with our tremendous commercial hatcheries equipped to put out millions of chicks, we have a short-cycle business. Efficient poultrymen will not be crowded out but will follow practices that will return them a fair income. The individual operator is the big factor in the success or failure of this present-day poultry business.

## *Tricks of Unscrupulous Poultry Buyers*

Several years ago, a trucker called at my place, and I sold several hundred cockerels. Two weeks before several had averaged 1¼ lbs. They were a very uniform lot, and after the truck had gone, I was dumbfounded to discover the lot averaged only 1¼ lbs. My cousin diagnosed the trouble, having been through the mill several times, and a competing dealer finally put him wise to the trick. Here is the set-up:

The trucker, usually with a helper, calls. They offer a cent or two per pound above market for poultry, and prefer to buy in lots of at least four or five coops. They insist your scales are O.K., and that you do the weighing. They pile four or five empty coops on the scales, and the tare weight is set down. Then they fill the coops. Four or five full coops are piled on the scales, and they tell you to weigh the birds.

Some time while they are piling the full coops on the scales, or just before you begin to weigh, the coops are shoved toward the beam of the scales. This seems like a perfectly logical movement and looks as if they were anxious to have the coops firmly on the platform.

What happens is that about every third one of their coops has an inch piece nailed to the outside edge along the bottom. When they pile the coops loaded with birds on the scales, they see that one of these coops with runner is on the bottom. When they step up to push the coops toward the beam, they are actually putting more weight on this runner and taking it off the gross.

These weight artists become very skilled, and will push the coops toward the beam only as much as they think the particular customer will stand. One man thinks he lost about 50 lbs. of poultry every time they bought 200 lbs. over a period of several years. Finally he talked so much that the average weight per bird was light that they reduced the price per pound offered him and did not take off by "riding" the runner.

—R. D. K. in American Agriculturist, May 27, 1939.

¶ CHICKEN ranked next to steak as the favorite food of students at Texas Christian University, Fort Worth, Texas, in a poll conducted by the student newspaper.

# More Summer and Fall Eggs From Old Hens

By J. H. Florea

*Condensed from Poultry Tribune*

LIKE many another poultryman, I have always kept a very large majority of pullets, as the old hens never got going in the fall in time to produce any quantity of profitable eggs. The high cost of pullet rearing cuts materially into one's profits each year. If hens which have laid well the first year and which, naturally, have paid for themselves and a profit besides (we hope) can be molted all at once and got back into good production quickly, they should lay well the second year, and a splendid profit can be realized from the same initial investment in stock."

This problem, stated by M. V. Bryant, N. Y., is one which many poultrymen would like to solve. If yearling or older hens can be induced to lay more eggs during the last six months of the year, profit can be increased, because egg prices are highest during that period, and the large hen eggs are worth more on the market.

Practices which will help in securing more summer and fall eggs from old hens may be divided into two general policies. In one, the aim is to keep the hens laying through the summer and fall, and just as late into the winter as possible.

The second aim is to have them molt during the summer, and bring them back into production to lay late fall and winter eggs.

We don't believe that either plan is universally best. It depends upon the flock under observation. Most tests seem to show an advantage for keeping the hens in production as long as possible, but many poultrymen like to practice early forced molting on at least a part of their flock.

Bryant, who stated the problem for us in the first paragraph, is one who likes force molting. He tested this practice first on a small group of 52 hens in the fall of 1937-38; then this last fall, he force molted 525 yearling hens with very satisfactory results. Here is his procedure:

"When a pen that has laid well all winter begins to slide off in summer, and finally, about August 1, falls to 30 per cent production, we move them out onto range from which early pullets have been housed. The range is bare, and we take away all mash; giving only about six quarts of grain per 100 birds (half corn and wheat) in the afternoon.

"Production will drop away rapidly, as will the feathers, and in a week the range will look like a cyclone had hit a feather mattress. This is drastic medicine, and requires careful attention to the birds' condition. The weak birds should be removed and coddled a bit, or marketed, for the chances are that these will not make the grade. However, those that go through are rugged individuals, and are what we desire to turn in a creditable showing the second year of production.

"When the body feathers have reached about one inch in length, open the mash hoppers a couple of hours, morning and evening. If the birds stay in good flesh, do not increase the grain feeding. At the end of the fourth or fifth week open the hoppers for longer and longer times, until at the end of the sixth week they have mash all day. As new eggs begin to appear, gradually increase scratch grains, and when the flock has reached about 15 per cent of lay, remove to clean winter quarters. Put on lights sufficient to give a 14-hour day until production is up to 30 per cent and on the decided increase, then gradually decrease lights to a 12-hour day, the same as pullets are getting, and with body weight normal, production will go up rapidly as in a flock of pullets."

### Some Start Molting Earlier

Practically all who practice force molting follow a similar procedure, except that many of them begin the molting period two weeks to a month earlier. Some poultrymen, too, divide their flocks and force molt only those hens which were the earliest to go out of production in the summer. The better group of hens is then kept in production as long as possible.

While the use of morning lights to provide a 14-hour day usually will prove satisfactory, many have found it even better to use all-night lights to induce the hens to complete their molt and come back into laying condition quickly. When all-night lights are used, 10 or 15 watt bulbs are used in place of the brighter ones preferred for evening and morning lighting, one bulb for each 100 hens.

In flocks where force molting is practiced, a part of the chicks should be hatched in January or February in order to have early pullets in production while the old hens are molting. A flock of fall hatched pullets also helps in maintaining production during this late summer period. Unless some arrangement is made, however, to have early pullets or the better old hens in production during this period, force molting means that there will be several weeks with practically no egg production at all.

### How to Maintain Production

The second procedure, the more popular one, is to keep the hens in production as late as possible in the fall.

Practically all flocks of old hens, with only limited culling, will maintain a fairly high rate of production until at least the middle of July or the first of August. At that time their production will usually begin to show a falling off. Some flocks may even go longer before dropping below the 50 per cent production, at which consideration should be given to some stimulating measures.

Probably the first such measure is that of all-night lights, which seem to be especially effective in increasing or maintaining the production of old hens.

Then, at the time of molting, hens need additional protein. Because it is so easily digestible, the feeding of around three pounds of condensed milk, or its equivalent in dried or liquid milk, to each 100 hens is an especially good way to provide such protein at that time of year.

Likewise, the use of a moist mash consisting of the regular laying mash mixed with milk or water to make it just crumbly is popular. In fact, many believe that a moist mash for old hens (not pullets), beginning about August 1, is more valuable than at any other time of year. An amount which the hens will clean up in 15 or 20 minutes is spread along the mash hoppers about noon of each day.

In addition to these special manage-

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(Poultry Tribune, June, 1939)

ment features, it is essential that the flock has a good quality of laying mash available throughout the entire spring and summer; that plenty of fresh water be provided; that the houses be as cool and well ventilated as possible; that the hens be kept free from lice, mites and worm infestation; and that the grain feeding be regulated according to the body weight of the birds.

### When and How Much to Cull

Another problem which seriously affects profit is the proper degree of culling during the summer. Some managers cull very heavily throughout the spring and summer on the basis that poultry meat prices are higher at that time.

On the other hand, records show that most flocks lay by far the largest volume of eggs in the spring and early summer, and because of the fact that these eggs are produced more economically than at any other season of the year, the margin of profit over feed cost for the flock usually is highest from April to August or September.

For that reason, most good poultrymen seriously doubt the wisdom of heavy culling during the spring. Of course, birds in poor health, and those which obviously won't lay should be culled out at any time, but practically all healthy hens, if properly fed and managed, will lay enough eggs during the spring and early summer to more than pay their way.

Perhaps some poultrymen who would like to keep their hens later into the summer and fall do not do so because of lack of housing space. Pullets need to be housed as soon as they begin laying and, frequently, the old hens must be sold to make room for them.

### How to Use "Barracks" House

Poultrymen in the northeastern states solve this problem by using what they call a "barracks" house. Hens can be transferred to it in the summer and left there until about the first of January. Then, it is used for brooding, for growing broilers, for fattening birds, or for other purposes during the spring and early summer.

If no barracks house is available, some poultrymen transfer the hens to laying shelters, which are simply large range shelters. Hens may do well in these during the summer, but in the northern states, they can't remain in these much later than September.

Hens to be saved for breeding can be handled just like the others unless hatching eggs are wanted early in January. In that case, it will be necessary to discontinue the light and reduce the feed not later than October to give them time to molt and be back in production by January.

Remember that the management suggestions offered here are for use on yearling hens, not pullets just beginning to lay. If, in the past, you have rather neglected your old hens during the summer, you will find that some special care of them will be time and money well invested.

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◀◀ WHEN traffic officer David T. Coleman of Harrisburg, Pa., blew his whistle and stretched out an arm to signal motorists, he was surprised to have a chicken alight on his outstretched arm. The chicken apparently had broken out of a crate in a passing truck.

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# Some Observations on Producing Smoked Poultry Experimentally

By Matthew E. Highlands
University of Maine

*Condensed from a News Release*

WITHIN the past two or three years an unusual food delicacy, smoked turkey, made its appearance in the food markets. Following its introduction and acceptance by the public, many poultry producers have become interested in preparing turkey and other poultry in this manner. Needless to say, the market for such a specialty product is limited, since the selling price places it in a luxury food class. In addition, it is not a type of food product which will readily appeal to everyone's palate.

The Department of Bacteriology and Biochemistry at the University of Maine has carried out some experimental work on the pickling and smoking of poultry with the thought in mind that such products might be produced on the farm as a food specialty for a high class trade.

### Use of Saltpeter Undesirable

In working on a suitable formula for pickling, we felt that the incorporation of certain spices might aid in the development of a distinctive flavor prior to smoking. The use of saltpeter (potassium nitrate) in a pickling formula seems undesirable since it favors the development of "setting" of a red color in the dark meat and a pink color in the white meat. To the average consumer of chicken, this color does not appear natural. Since little is gained from a curing standpoint in these products, we have eliminated the saltpeter from our formulas.

It should be clearly understood that the formulas listed below are by no means hard and fast, but are merely offered as suggestions for a starting point in developing a suitable pickle. Everyone will have his own ideas concerning what spices and how much of each spice should be used in the pickle. In addition, we have prepared a pickle using a commercial smoked salt in order to see if it would be possible to eliminate the final smoking process. This formula is also included.

### Spice Extracts Can Be Used

A bacteriological examination of ground spices and of commercial spice extracts seems to indicate that bacterial contamination can be controlled to some extent by using spice extracts.

**Formula 1. U. S. D. A.**

| | |
|---|---|
| Salt | 6 lbs. |
| Sugar | 3 lbs. |
| Saltpeter | 3 oz. |
| Water | 4½ gals. |

**Formula 2**

| | |
|---|---|
| Salt | 4 lbs. |
| Sugar | 30 oz. |
| Celery Extract | 2 grams |
| Pepper Extract | 4 " |
| Parsley Extract | 4 " |
| Sage Extract | 1 " |
| Thyme Extract | 1 " |
| Majoram Extract | 1 " |
| Water | 4½ gals. |

News Release from University of Maine, Orono, Me.

### Formula 3

| | |
|---|---|
| Salt | 4 lbs. |
| Sugar | 30 oz. |
| Celery Extract | 5 grams |
| Pepper Extract | 4 " |
| Parsley Extract | 5 " |
| Sage Extract | 1 " |
| Thyme Extract | 4 " |
| Marjoram Extract | 4 " |
| Bay leaves Extract | 2 " |
| Sweet Basil Extract | 2 " |
| Water | 4½ gals. |

### Formula 4

| | |
|---|---|
| Plain salt | 3½ lbs. |
| Smoked salt | ½ lb. |

Rest of formula same as for No. 2.

Although spice extracts have been used in preparing the above pickle formulas, it is possible to substitute dry ground spices in the ratio of two parts of ground for each part of spice extract.

With regard to salt concentration, our experience has been that a somewhat lower concentration may be used than that recommended by the U. S. D. A.

In preparing the smoked product certain basic precautions should be observed.

### Cool Pickling Room Needed

First of all, we consider it undesirable to pickle and smoke poultry in the warm months of the year unless the producer has refrigeration facilities available which will enable him to maintain a temperature of 35 to 40 degrees Fahrenheit in the pickling room. Pickling at temperatures above this will result in an unsatisfactory product. The poultry to be smoked should be fasted for a day before killing. After killing it should be carefully dressed, as for market. It is necessary to remove all of the entrails, being particularly careful not to break the intestinal tract and allow the intestinal contents to contaminate the body cavity.

Directly after cleaning the bird, the body cavity should be wiped out carefully with two or three paper towels, endeavoring to dry the body cavity and surface of the bird as much as possible. It should be noted here that a large opening should be made in the region of the crop, so that the pickle may enter the body cavity from both ends of the bird. The poultry should be cooled over night and placed in the pickle in such a manner that no air pockets are entrapped within the body cavity. The birds should be completely covered with the pickle.

The poultry should remain in the pickle approximately a day and a half per pound of dressed weight. At the end of this time, the poultry may be removed and roughly dried with paper towels. They should then be hung in a smoke house and smoked from five to eight hours, depending upon the strength of smoke flavor desired.

It was noted that poultry smoked for the shorter period of time did not have as good keeping qualities as those smoked for a longer period. Care should be taken to prevent the temperature of the smoke house from becoming too high. Smoke house temperatures of 100 degrees Fahrenheit to 115 degrees Fahrenheit appear to be satisfactory. The birds should be hung by the wings in such a manner that the smoke finds free access to the body cavity.

### Corn Cobs for Smoking Material

In our work we used dry corn cobs as a smoking material. The source of smoke may be varied according to the taste of the individual doing the smoking. From our limited experiments, it would seem that corn cobs offer a most satisfactory raw material for producing a smoke.

Following smoking, the poultry should be allowed to hang in the smoke house over night and removed the following day. If it is possible to place the birds in a reasonably warm and very dry room for 24 hours in order to dry out surface moisture, subsequent spoilage by mold will be retarded.

### Keep Under Refrigeration

It should be borne in mind that smoked chicken prepared under the above conditions is a perishable product and should be kept under refrigeration until used.

We have found that the birds can be roasted in the ordinary manner with the exception that they should be placed on a raised rack in the baking pan, since there is some tendency for the salt to leach out of the bird during the roasting process. This will collect in the moisture at the bottom of the pan, and unless the bird is placed on a rack in the manner directed, may make the finished product too salty for taste. The baked or roasted chickens may be eaten at once, but they are probably more satisfactory if allowed to cool before slicing and serving.

Some trouble with the molding of the pickle during the pickling process may be encountered. In order to prevent this mold growth which occurs on the surface of the pickle, a very thin film of mineral oil, such as Nujol or a similar oil, may be used on the surface of the pickle. From our experiments, we would recommend that the pickle be used only once. In other words, fresh pickle should be used for each new batch of raw material.

We can not stress too strongly the necessity for great care and cleanliness throughout the process, as well as reasonable temperature control, if you wish to produce a sound product with good keeping qualities.

Pickling vats may be either large stone crocks, or if these are not available, sound, clean barrels or hogsheads which have been paraffined may be used.

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❝ WHEN it comes to new ideas to boost one's products, we must leave it to Swift and Company. At the World's Fair they have as a part of their exhibit a fire that burns night and day, giving off the aroma of hardwood smoked hams and bacon. If the egg industry could hit upon some such scheme, ham and bacon might have a close competitor. There is one hope, however, that when that aroma of smoked ham and bacon drifts over the hungry crowd they will remember the old combination of ham and eggs rather than ham alone.

—From "Around the Lot with the Old Poultryman," The Poultryman, June 2, 1939.

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❝ TEXAS continues to be the most important turkey producing state, but its peak in numbers was reached in 1932. California ranks second. Minnesota is third, but is being closely pressed by Iowa, with its phenomenal increase of over 1200 per cent from 1929 to 1938, in the number of turkeys raised.

—B. H. Bennett, Turkey World, May, 1939.

# Incubation Trouble Chart

By T. S. Townsley

Smith Incubator Co., Bucyrus, Ohio

*Reprinted from 1939 Buyer's Guide*

| Symptoms of Trouble | Probable Causes | Suggested Remedies |
|---|---|---|
| EGGS CLEAR<br>No blood ring or embryo growth. | 1. Improper mating.<br>2. Eggs too old.<br>3. Breeding hens too thin.<br>4. Birds too closely confined. | 1. Eight to ten vigorous males per 100 hens.<br>2. Eggs set within 10 days after date laid.<br>3. Keep hens in good flesh. |
| EGGS CANDLING CLEAR<br>But showing blood or very small embryo on breaking. | 1. Incubator temperature too high.<br>2. Badly chilled eggs.<br>3. Breeding flock out of condition (frozen combs, chicken pox, etc.).<br>4. Low vitamin ration. | 1. Watch incubator temperatures.<br>2. Protect eggs against freezing temperatures.<br>3. Do not set eggs from birds with frozen combs or with contagious diseases.<br>4. Feed fish oil and alfalfa. |
| DEAD GERMS<br>Embryos dying at from 12 to 18 days. | 1. Wrong incubation temperature.<br>2. Lack of ventilation.<br>3. Faulty rations. | 1. Close temperature regulation.<br>2. Plenty of fresh air in incubator room and good ventilation of machines.<br>3. Feed yellow corn, milk, alfalfa meal and fish oil. |
| CHICK FULLY FORMED<br>But dead without pipping. | 1. Improper turning.<br>2. Heredity.<br>3. Wrong temperature. | 1. Turn eggs four times daily.<br>2. Select for high hatchability.<br>3. Watch incubator temperature. |
| EGGS PIPPED<br>Chick dead in shell. | 1. Low average humidity.<br>2. Low average temperature.<br>3. Excessive high temperature for short period. | 1. Keep wet bulb temperature from 85 to 90 degrees.<br>2. Maintain proper temperature throughout hatch.<br>3. Guard against temperature surge. |
| STICKY CHICKS<br>Shell sticking to chick. | 1. Eggs dried down too much.<br>2. Low humidity at hatching time. | 1. Carry wet bulb temperature of 85 degrees between hatches.<br>2. Increase wet bulb reading to 88-90 degrees when eggs start pipping. |
| STICKY CHICKS<br>Chicks smeared with egg contents. | 1. Low average temperature.<br>2. Small air cell due to too high average humidity. | 1. Proper operating temperature.<br>2. Increase ventilation and lower humidity. |
| ROUGH NAVELS | 1. High temperature or wide temperature variations.<br>2. Low humidity. | 1. Careful operation.<br>2. Proper humidity. |
| CHICKS TOO SMALL | No blood ring or embryo growth.<br>1. Small eggs.<br>2. Low humidity.<br>3. High temperature. | 1. Set nothing under 23 oz. eggs.<br>2. Maintain proper humidity.<br>3. Watch incubator temperature. |
| LARGE SOFT BODIED CHICKS | 1. Low average temperature.<br>2. Poor ventilation. | 1. Proper temperature.<br>2. Adequate ventilation. |
| MUSHY CHICKS<br>Dead on trays, with bad odor. | 1. Navel infection in incubator. | 1. Careful fumigation of incubator between hatches. |
| SHORT DOWN ON CHICKS | 1. High temperature.<br>2. Low humidity. | 1. Proper temperature.<br>2. Careful moisture control. |
| HATCHING TOO EARLY<br>With bloody navels. | 1. Temperature too high. | 1. Proper control of temperature. |
| DRAGGY HATCH<br>Some chicks early, but hatch slow in finishing. | 1. Temperature too high. | 1. Proper operation. |
| DELAYED HATCH<br>Eggs not starting to pip until 21st day, or later. | 1. Average temperature too low. | 1. Watch temperatures—check thermometers. |
| CRIPPLED CHICKS | 1. Cross beak—heredity.<br>2. Missing eye—abnormal.<br>3. Crooked toes—temperature.<br>4. Wry neck—nutrition (?). | 1. Careful flock culling.<br>2. Matter of chance.<br>3. Watch temperatures.<br>4. Not fully known. |
| EXCESSIVE YELLOW COLOR ON CHICKS | 1. Too much formaldehyde—fumigation. | 1. Follow directions on fumigation program. |

1939 Standard Directory and Buyer's Guide. Price, $1.00. Published
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## Brewers Promote Sale of Hard-Boiled Eggs

Pennsylvania brewers, through their state association, are promoting the sale of hard-boiled eggs in taverns and taprooms with colorful posters showing hard-boiled eggs, some of them sliced, and brimming glasses of beer with the suggestion, "Try them together." Some 25,000 of these posters are being distributed, and 275 newspapers are being used in connection with the campaign.

In the Philadelphia area, some of the taprooms are using automatic machines for dispensing hard-boiled eggs. All you have to do is put a nickel in the slot, turn the lever, and an egg drops down. Graded eggs are being used.

THE TURKISH Government has provisionally forbidden the export of birds for slaughter. This measure has been taken in view of the main laying and breeding season now beginning. The only birds that may henceforth be exported are those no longer capable of laying. The majority of exports previously went to Germany.

—Poultry World, London, May 12, 1939.

THE NEW air raid protection shelters in England, similar in shape to bended bow or cylinder type of brooder houses in this country, can be used for housing a few hens, suggests Feathered World. The shelter may also be used for a scratching shed in connection with laying houses.

# After Hybrid Corn—"Top Cross" Poultry

By N. F. Waters

*Condensed from Poultry Tribune*

EXPERIMENTS at the Iowa station have modified the breeding technique used to produce hybrid corn in such a way as to develop "top-cross" chickens which show a great improvement in fertility, hatchability, and livability to 24 weeks of age.

Actually the "top-cross" birds laid eggs which were 9.8 per cent more fertile, hatched 5 per cent better, and the chicks lived 5.5 per cent better up to 24 weeks of age than did the eggs and chicks from random-bred (flocks mated in the customary way) White Leghorns. These results extended over a five-year test period and demonstrate, for the characters studied, that when highly inbred White Leghorn males are crossed with random-bred White Leghorn females of average or better performance, their progeny will show marked superiority.

The results obtained at the Iowa State College Experiment Station suggest that breeding procedures which have so revolutionized corn breeding may be applied to poultry breeding, and thus help to reduce the losses incurred during the first six months of the growing period. Any poultry breeding method which will reduce mortality 20.3 per cent from the time the egg is fertilized up to the twenty-fourth week is well worth the attention of the poultry breeder.

Let us briefly review hybrid seed corn history as a basis of comparison. The first corn inbreeding data was made available about 1908. It was not until the early 30's that recognition was afforded hybrid corn. What went on during this period? Naturally, investigation with its trial and error. How many inbred lines of corn are actually useful for hybrid work? Probably not more than 2 per cent. What determines their usefulness? Testing, of course! Can we short cut much of the long period of experimentation in corn breeding work to establish inbred lines of poultry? Certainly. We know how to apply better the genetic laws and profit by the corn breeding work. But, not until someone raises additional strains of inbred poultry for test purposes. Fortunately, the inbreds used at Iowa State had blood lines that matched well. This is understandable because of the high relationship of each family to the original stock.

### Results Will Vary

I wouldn't be so bold as to assert that all inbreds will produce the same results. I am, however, reasonably certain that the experiments I conducted at Iowa State College point the way to a new use of breeding procedure which will obtain higher productivity for many economic characters. Sound breeding work with corn substantiates my findings, and, in fact, acted as my guide.

There is a possibility, too, that the crossing of inbred lines may be of even greater value than "top-crossing" —(mating an inbred line with a random-bred flock).

Before we become too enthusiastic about the immediate application of these discoveries, it should be pointed out that the recent publicity accorded the "top-crosses" fails to stress the experimental phase of this work. We tried to find out whether the breeding procedures which have been found so successful in producing hybrid corn could be applied to animals.

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(Poultry Tribune, May, 1939)

### A Review of the Background

Genetics as a known science is relatively young, but in practice the breeder has been following genetic laws for thousands of years. One of the most useful, but at the same time most dangerous genetic tools used by a breeder is termed inbreeding.

A judicious use of inbreeding combined with careful selection very quickly can fix a character within a given breed. However, the "catch" in inbreeding is that the bad characters are fixed just as rapidly as the good ones. All the skill of a breeder must go into the planning of breeding procedure and the selection of breeding stock. Inbreeding is not strange to the plant world, since such plants as wheat and oats are self-fertilized, and the most intensive type of inbreeding has been in progress probably since the existence of these plants in their present form.

Within the past 20 years several attempts have been made to inbreed poultry, but almost invariably intense inbreeding has resulted in a rapid piling up of undesirable characters and eventual elimination of the strain.

### Results from Inbreeding

During 1926, the inbreeding experiment related in this article was begun at the Iowa State College Experiment Station. The original experiment started with S. C. White Leghorns, one male and eight females. Over a period of 12 years, approximately 25,000 birds could claim a relationship to the original sire and eight females. Nearly all the birds in the present generation are more highly related to the original male than a brother and sister of ordinary outbred parentage would be.

The results of this inbreeding experiment have clearly demonstrated that close inbreeding may be practiced in poultry, provided careful and rigid selection for certain characters is maintained at all times, particularly for high hatchability. For most characters these inbred birds have retained to a remarkable degree the excellent qualities possessed by the foundation birds.

Inbreeding provides a mechanism by which the good results of right crosses and the bad results of wrong choices in selection are much more apt to be retained in the flock and fixed permanently than would be the case if no inbreeding accompanied the selection. Therefore, the breeder who is inbreeding must be exceptionally cautious in his choice of birds for breeding, if he is to avoid the fixation of undesirable characteristics in his flock. Inbreeding does not mean necessarily the mating together of sire and progeny or brother and sister which, of course, is the most intense method of inbreeding. Half brothers and half sisters, first or second cousins, and many other combinations of relatives may be mated together to increase slowly the inbreeding within a flock. An occasional intensely inbred mating may yield valuable results, if it is not repeated too frequently.

Recent material published by the Iowa Experiment Station dealing with breeding experiments conducted there reports the crossing of highly inbred White Leghorns with an excellent strain of random-bred White Leghorns. The resulting progeny from such a cross was termed "top-cross." Genetically, these birds may also be termed "hybrids."

The term "hybrid" strictly defined in genetics means the progeny or offspring of two parents unlike one another in one or more heritable characters. "Crossbred" is defined as produced by mixing breeds. Crossbreeding means to hybridize, to breed between two varieties or breeds of the same species. Hence, all crossbreds are hybrids, but all hybrids are not by any means "top-crosses." The term hybrid is one that has wide application and may be applied whenever two animals that are not completely alike for all genetic characters are crossed together.

In general, it is unwise breeding procedure promiscuously to cross existing varieties or breeds. The resulting progeny may or may not be superior to the parents. No existing experimental evidence demonstrates the possibility, for example, of crossing two breeds which will permit predictable results for all characters in the progeny. One cross using specific breeds may be highly desirable, while another cross using the same breeds may give just the opposite results. The millennium has not arrived in poultry breeding, whereby crossbreeding will produce the perfect bird.

### Top-crossing Has Possibilities

"Top-crossing," whereby highly inbred strains of poultry are crossed with other strains of the same breed, suggests great possibilities for breed improvement. To the corn breeder, it has been known for a long time that the crossing of two inbred strains of corn will often "nick" and produce hybrid corn which frequently yields better than ordinary commercial strains of corn. Such crossing of two of these single-cross hybrids results in the much popularized hybrid corn.

It is well recognized that all poultrymen cannot raise inbreds for "top-crossing" purposes. This problem has been solved in corn breeding work through specialization whereby certain breeders produce seed corn for commercial use. The production of inbred males in poultry which may be crossed with random-bred females of the same breed should be highly beneficial to the poultry industry.

## *Canned Gas for Brooding Chicks*

A new brooding idea is the use of canned gas—that is, gas you can buy in tanks. This idea is already in use on the Pacific Coast and in New England. At least one manufacturer is making a canned-gas brooder.

At one of the experiment stations, trials are being made with a brooder heated with canned gas. When chicks were put in the first night, the thermometer was 10 degrees above zero. The brooder took care of them satisfactorily.

One place where canned-gas brooders would have an advantage is in colony houses on range where electricity is not to be had or is hard to distribute.

—Farm Journal and Farmer's Wife, June, 1939.

SOMEONE has invented an expanding egg cup, in which you twist the base and the cup grows larger or smaller—on the trellis-work principle.
—Feathered World, April 7, 1939.

# POULTRY RESEARCH

## Gizzard Lesions in Chicks

Experimental evidence of tests conducted by William B. Esselen, Jr., at Massachusetts State College, and reported in Poultry Science for May, 1939 (Vol. 18, No. 3), shows that there is no correlation between chick growth and the severity of gizzard lesions.

Esselen's gizzard lesion curative studies showed that dried pork lung, alfalfa leaf meal, soybean meal, oat groats, and wheat middlings were all effective, at least to some degree, in curing gizzard lesions. Of these, alfalfa leaf meal appeared most effective. The Massachusetts State College chick ration, which was used as the control ration, was very effective in preventing gizzard lesions and also in curing lesions.

Esselen's experiments provide evidence that chicks do not store any great amount of anti-gizzard lesion factor in their body and that they do need a constant source of this factor in their diet.

A preliminary study indicated that young turkeys either are not susceptible to nutritional gizzard lesions or are much more resistant to them than chicks are.

## Bacterin Effective in Reducing Losses from Duck Cholera

Vaccination with a bacterin prepared by killing the organism causing cholera in ducks was effective in reducing the losses from this disease, according to K. F. Hilbert and Herman Tax of the disease laboratory maintained by the New York State Veterinary College at Farmingdale, L. I. Their results were reported in the Cornell Veterinarian (October, 1938, Vol. 28, No. 4).

Through the cooperation of several duck ranches, 45,411 ducks and ducklings four weeks of age and older were vaccinated, while 5,761 birds in the same flocks were untreated and were permitted to remain as controls.

Mortality from duck cholera in the vaccinated group was 4.1 per cent in contrast to 29.4 per cent in the control group.

## Influence of Temperature and Humidity on Embryo Growth

The influence of temperature and humidity upon the growth of chick embryos in a modern mechanically ventilated incubator was studied by Robert Penquite at Iowa State College and Oklahoma A. & M. College, and reported in Iowa Research Bulletin 232. He concluded that loss of moisture from the egg is apparently influenced by temperature of the incubator, humidity within the egg chamber, circulation of air around the egg, shell texture, and the thickness and surface area of the egg shell.

The experiment showed that upper limits of temperature in a mechanically ventilated incubator of the type used are between 100.9 degrees Fahrenheit (38.3 degrees Centigrade) and 104.9 degrees F. (40.5 degrees C.); that 104.9 degrees F. in a mechanically ventilated incubator is equivalent to or higher than 106.9 degrees F. (41.6 degrees C.) in a "sectional" type incubator; and that growth results were practically equal when the mechanically ventilated incubator was operated at 2 degrees F. lower than the "sectional" type of machine.

Both dry and wet weight data showed that different levels of relative humidity caused no significant difference in embryo growth, but dry weight data for the temperatures studied showed that temperature exerts a decided influence on embryo growth during early stages of development.

## Wheat Germ Oil & Hatchability

Wheat germ oil fed at the rate of 0.5 cc. per bird daily over a period of three months apparently had no effect on the egg production, fertility or hatchability when added to a good breeder mash containing ground alfalfa, according to C. E. Holmes, W. W. Cravens and J. G. Halpin whose results are reported in Bul. 443 of the Wisconsin Agricultural Experiment Station.

Three pens were placed on the same mash ration, with the exception that the birds in one pen received the wheat germ oil to supply additional vitamin E. The results were satisfactory in all cases. The differences were too small to be of any significance, but favored the birds receiving no wheat germ oil.

## Effect of Sulphur on Egg Production and Hatchability

The effects of sulphur on hatchability and egg production have been studied by J. G. Halpin, C. E. Holmes and C. A. Herrick of the Wisconsin Agricultural Experiment Station. Their results, reported in Wisconsin Bul. 443, cover a 4-months period, and they point out that these findings should not be considered as conclusive.

The results are summarized as follows:

"1. White Leghorn pullets began laying at about the same age regardless of whether they were fed no sulphur or flowers of sulphur in amounts ranging from 0.25 per cent to 5 per cent of the ration.

"2. There was no significant difference in egg production between one of the control groups getting no sulphur and the lots receiving 0.5 per cent, 1 per cent, 2 per cent, or 5 per cent sulphur.

"3. Feeding from 1 to 5 per cent sulphur apparently had no effect on hatchability.

"4. For some reason the birds fed 0.25 per cent sulphur laid fewest eggs, and those given 0.25 per cent and 0.5 per cent sulphur had poorest hatchability, while those in the second control group produced somewhat more eggs than others. These discrepancies may have been caused by differences in the birds, and can only be cleared up by further research."

## Value of Manganese Varies With Phosphorus in Ration

Use of manganese sulphate in the rations of battery-raised chicks as a means of preventing slipped tendon or perosis is now widely recommended and the practice has proved its value at the Wisconsin Agricultural Experiment Station.

The fact remains that the amount of phosphorus (supplied by bonemeal) in the ration is an important factor affecting slipped tendon.

Another factor to consider is that Barred Rocks seem to be more susceptible to slipped tendon than are Leghorns. At least, that has been true consistently with the strains of Rocks and Leghorns used at this station.

From trials by J. G. Halpin, C. E. Holmes and W. W. Cravens, these indications stand out:

1. The commonly-recommended rate of ¼ pound manganese sulphate per ton of mash is not enough to prevent slipped tendon in Barred Rocks when the ration contains 4 per cent steamed bonemeal in addition to the bonemeal in 8 per cent meat scrap.
2. Using 1 pound of manganese sulphate per ton of mash gave better control of slipped tendon without any noticeable injury to the chicks, but there was still some trouble with slipped tendon when large amounts of bonemeal were fed.
3. If slipped tendon is to be held to a minimum, even when manganese is fed, the ration should not contain more than 0.75 per cent phosphorus. This amount is furnished by 8 per cent meat scrap, with no added steamed bonemeal.
4. Male Barred Rock chicks are much more affected by slipped tendon than are females.

These findings are of particular importance to commercial poultrymen who grow broilers of the heavy breeds in battery brooders during the fall and winter. Under such conditions it takes a fairly liberal amount of phosphorus to prevent rickets, and on the other hand, too much phosphorus brings on trouble with slipped tendon.
—Wisconsin Bul. 443.

## Stability of Vitamin A and Carotene in a Mixed Ration

An investigation on the stability of vitamin A in cod liver oil and carotene in dehydrated alfalfa leaf meal when incorporated in a ration of common feed ingredients and stored at approximately room temperature, carried on by R. M. Bethke, P. R. Record, and O. H. M. Wilder at Ohio Experiment Station, and reported in Poultry Science for May, 1939 (Vol. 18, No. 3), showed that both factors were unstable and both destroyed at about the same rate, although significant amounts of added vitamin A and carotene were still present after six months' storage.

Type of ration also affected amount of loss of vitamin A and carotene. Approximately 75 per cent of vitamin A and carotene was lost from a ration containing meat scraps and dried skimmilk after six months' storing, while not more than 50 per cent of both factors was lost in a comparable ration in which casein replaced meat scraps and dried skimmilk.

Addition of 0.10 per cent hydroquinone to the diluted cod liver oil solution before incorporation in the meat scraps-dried milk ration did not decrease the loss of vitamin A in the stored ration.

## Breeds Differ in Surviving Vitamin $B_1$ Deficiency

White Leghorns were able to survive a vitamin $B_1$ deficiency longer than Rhode Island Reds in experiments conducted by W. F. Lamoreaux and F. B. Hutt of Cornell University and reported in the Journal of Agricultural Research (Vol. 58, No. 4, Feb. 15, 1939).

Typical symptoms of polyneuritis were observed in the chicks that died. An unsteady gait and lack of muscle control were evident. Vitamin $B_1$ is destroyed by heat.

The superior resistance of White Leghorns to vitamin $B_1$ deficiency was not related to body size.

This experiment indicates that breed differences must be taken into consideration in establishing minimum requirements for vitamins or other elements in poultry nutrition.

## No Breed Differences in Cod Liver Oil Needs

For three years, J. G. Halpin, C. E. Holmes and E. B. Hart of the Wisconsin Agricultural Experiment Station have tried feeding different amounts of cod liver oil to White Leghorn and Barred Rock laying hens. They have particularly sought to learn whether there is any difference in the vitamin D requirements of the two breeds.

The reason this question has come up is that some authorities believe Leghorns do not need as much fish oil as Rocks. Their reasoning is that Leghorns, having larger combs and wattles, are better able to absorb and use sunlight in building vitamin D.

However, the work has shown both breeds need about the same amount of cod liver oil—namely, 0.4 per cent of the ration, or a pint of oil per 100 pounds of mash, assuming that mash makes up 40 per cent of the ration. This is on the basis of oil containing 85 A.O.A.C. units of vitamin D per gram.

Although Rocks and Leghorns seem to have about the same requirements, they do not react exactly alike to a shortage of vitamin D. When given insufficient vitamin D, the strain of Rocks used here tends to produce eggs with a higher percentage of abnormal embryos (many of which die before hatching) than do the Leghorns. On the other hand, Leghorn pullets are more apt to develop crooked breastbones than are Rocks when given too little vitamin D in the laying pens during fall and winter.

—Wisconsin Bul. 443.

## No Economy in Feeding Low-Protein Mash to Turkeys

Turkey feeding trials in Michigan, reported in Michigan Agricultural Experiment Station Quarterly Bulletin for November, 1938, indicate that there is apparently little or no economy or advantage in feeding a low-protein mash to turkeys after they have been started for the first 8 or 12 weeks on a high-protein ration.

## Protein Needs of Capons

There is no particular advantage in feeding capons a ration higher in protein than is ordinarily used for baby chicks, unless the market will pay a premium. This is the conclusion reached by J. G. Halpin, G. E. Annin and C. E. Holmes, and reported in Bulletin 443 of the Wisconsin Agricultural Experiment Station.

On a ration in which 8 pounds of meat scraps and 8 pounds of dried milk in 100 pounds of mash were the main protein sources, 45 per cent of capons weighed over 7 pounds at 28 weeks of age, and 27 per cent scored over 90 on the basis of quality. The cost per pound of gain was 7.6 cents.

When 16 pounds of soybean oilmeal was included along with 8 pounds of meat scraps and 8 pounds of dried milk, 75 per cent of the birds weighed over 7 pounds at 28 weeks, and 74 per cent scored 90 or better, but the cost per pound of gain increased to 8.3 cents.

## Infertile Eggs as Chick Feed

That infertile eggs discarded by hatcheries may be used successfully in chick rations is a finding made by J. G. Halpin, C. E. Holmes and M. H. Meshew of the Wisconsin Agricultural Experiment Station.

Halpin, Holmes and Meshew prepared infertile eggs for feeding by hardboiling them, running them through a food chopper without removing the shells, and then mixing enough mash with the ground eggs to keep them from being sticky.

Every morning the chicks were given all the egg mixture they would clean up during the day. In addition, the chicks in one pen had access to the regular Wisconsin No. 2 chick mash, while those in another pen got this mash without the customary dried milk, that is, containing 8 per cent meat scrap as the only protein supplement. A check pen received only the No. 2 ration without eggs.

At first the chicks did not eat much egg mixture, but consumption gradually increased until at the end of 6 weeks a pen of 70 birds ate 20 to 24 eggs daily.

Growth records show the chicks getting eggs to replace dried milk grew almost as fast as those receiving the regular No. 2 mash without eggs, while those getting eggs in addition to the regular mash grew fastest of all by a good margin.

Not only did feeding eggs in addition to the regular mash speed up growth but also made possible a saving on mash. In 6 weeks the pen getting only mash consumed 225 pounds, while the pen fed eggs in addition consumed only 145 pounds of mash.

—Condensed from Wisconsin Bul. 443.

## Fishy Flavor in Turkeys

Menhaden fish meal imparted a fishy flavor to turkeys when used in the ration, according to Reece L. Bryant and Gladys T. Stevenson who report their results in Virginia Agricultural Experiment Station Bulletin No. 321.

It required a period of four weeks to eliminate all traces of fishy flavor when fish meal comprised 10 per cent of the ration; eight weeks, when it comprised 20 per cent of the ration.

The investigators conclude that unless there is a favorable price ratio between fish meal and meat scrap, the former should not be used in the ration of turkeys. If used at all, it should be omitted from the ration at least eight weeks before slaughtering.

## Use of Artificial Lights and Heat for Turkeys

Results of research work on the use of artificial lights and heat for turkeys at Iowa Agricultural Experiment Station by H. L. Wilcke, and reported in Poultry Science for May, 1939 (Vol. 18, No. 3), indicate that:

1. Turkey females may be brought into production at an earlier date than normal by the use of lights, using either morning and evening or all-night lights.
2. Length of time between start of lights and date of first egg varies with the time of year and to some degree with climatic conditions. In general, lights should be turned on six weeks before a reasonably high level of production (40 or 50 per cent in these tests) is desired.
3. Fertility was not affected by lights or heat, although there was evidence of preferential mating in the early eggs from certain pens.
4. Total production per bird through June was increased by the use of lights.
5. Egg weight was not affected by the use of lights.
6. Total feed consumption per bird per month was not affected by the use of either lights or heat.

7. Birds in heated pens consumed a much higher proportion of mash and much less grain than those birds which received no heat.

## Practical Value of Periodical Trapnesting

By trapnesting layers one day a week throughout their pullet laying year, poultrymen can select birds for breeders that possess such desirable characteristics as early maturity, non-broodiness, good winter rate and persistency of laying. Weighing the eggs on the day of trapnesting each week will enable the poultrymen to determine average egg weight as well as average number of eggs. Even progeny testing can be practiced with a reasonable degree of accuracy.

These conclusions are made by M. W. Olsen, of the U. S. Department of Agriculture, from tests conducted at the National Agricultural Research Center, and reported in Poultry Science for May, 1939 (Vol. 18, No. 3). Olsen concludes that such a plan, although not adapted for determining the whole-year egg yield with complete accuracy, is serviceable for determining the most prolific layers.

## Palatability Studies With Roasters

Palatability studies with roasters were conducted by Miss Belle M. Lowe at Iowa State College, and reported in The U. S. Egg and Poultry Magazine, April, 1939.

Two groups, 24 roasters in each group, one frozen and the other unfrozen, were cooked. Half of each group was prepared by washing out the internal cavity with a stream of water after drawing, while the other half was wiped with a damp cloth, but the interior was not washed.

Results according to the different points on which the test was based were as follows:

Visible Fat — Washed birds had same amount as wiped birds. Frozen birds had more visible fat than unfrozen birds.

Color of Fat—Generally from grayish yellow to creamy white. Frozen birds had a grayish tinge more often.

Loss During Defrosting (of frozen birds) — Washed birds had greater loss in drip and vapor than wiped birds.

Condition of Flesh—No great difference in washed and wiped birds. Unfrozen birds were more flabby than frozen birds.

External Appearance — Generally desirable. Washed birds significantly better than wiped birds.

Cooking Losses — No great differences in washed and wiped birds. Frozen birds had greater losses than unfrozen birds.

Odor—Very slight for exterior of all birds. Odors for frozen birds were much more desirable than for unfrozen birds. All odors less objectionable after cooking. Washed and wiped birds were the same. Aroma of thigh muscles of frozen birds was superior to that of the same muscles of unfrozen birds.

Flavor—The same for washed and wiped birds, significantly better for frozen birds than for unfrozen birds.

Juiciness — Same for washed and unwashed birds. Unfrozen birds were juicier than frozen ones.

Tenderness — All scored approximately the same.

Acid Concentration—Lower in uncooked, unfrozen roasters than in uncooked, frozen roasters. Not significantly different in cooked birds, or in the washed and wiped birds.

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# Credit Fundamentals of a Poultryman

By Paul G. Sholtz
**Credit Manager, Poultry Producers of Central California**

*Condensed from News for Farmer Cooperatives*

THE poultry raiser needs certain primary financing in the form of his own capital for the purchase of his land, improvements, equipment, and poultry flock.

While such primary financing is needed for a number of purposes, his land and permanent improvements are the only investments acceptable as security for a long-time or capital loan. All of his other investments are barred by their relatively temporary nature, but they are suited to serve as security for a short-time or operating loan.

The amount of a capital loan is governed by the requirement of the lender of an adequate equity on the part of the borrower in the property serving as collateral for the loan. Such requirement unfortunately is affected to an undue degree by the nature of business conditions prevailing at the time the loan is made. This practice leads to difficulties and distress of the borrower, and sometimes the lender, if the loan made during a period of optimism born of prosperous conditions falls due during a depressed or even normal business period.

### Long Term on Capital Loans

The capital, or land loan, should leave a margin of security for unfavorable developments and the experience and production capacity of the borrower should be given due consideration. Loans of this type should have a term long enough to make the burden of repayment supportable and should provide for the privilege of prepayment.

The old method of making land loans on a flat basis, calling for repayment of the entire loan in a relatively short period of time, say, 5 or even 10 years, with prepayment privilege, is being abandoned in favor of the long-term type with fixed periodical repayments.

### Production Loans

In theory, the period of an operating or production loan is determined by its purpose, but owing to the nature of the poultry business, the needs for financing overlap and it is difficult to draw a line establishing the length of the term. A loan for chick raising program should, theoretically, be repaid from the proceeds of sale of old hens and eggs from the pullets raised, within one year, at which time the borrower would be ready for another seasonal loan of the same character.

But this theory is not always supported by practical conditions which may necessitate a loan to be repaid over 2 or even 3 years. This has led to the belief that such borrowers do not benefit from their loans and that operating loans to poultrymen are not practicable. Fortunately, this belief is based on misconception of the nature of the poultry industry.

### Poultry Adjusts Itself Quickly

Like other branches of farming or other industries, poultry raising is subject to ebbs and tides of pros-

Farm Credit Administration, Washington, D. C.
(News for Farmer Cooperatives, April, 1939)

perity, but unlike most of them it possesses a wonderful recuperative power. It has the advantage of being susceptible of a rapid liquidation in times of unduly long depressed earning power of its devotees and of a quick rehabilitation in times of prosperity. Its ebbs and tides are often unpredictable, sometimes running counter to the general tendency.

During the last major depression the central California poultry industry remained on a level keel for a considerable period. It commenced to feel the grip of hard times only during 1931. On the other hand, in 1936 and until the grain harvest in 1937, it suffered unduly because grain prices move much faster than egg prices.

These circumstances are cited to make clear the reason for a poultryman's inability always to manage with a one-year operating loan. During depressed conditions his operating capital becomes depleted and the process of rehabilitation does require the use of operating credit over a period longer than one year. Aside from these general causes, the poultryman's ability to repay a loan may be affected by individual causes. Sickness among his flock or in his family, purchase of necessary equipment requiring relatively large capital outlay, may affect temporarily his ability to repay an operating loan in one year.

The ability of the poultry industry to adjust itself quickly to changed conditions combined with its ability to reward the labors of the poultrymen under normal or stabilized conditions makes the experienced poultryman with adequate capital financing an excellent risk for operating credit.

Experience is a factor deserving full consideration, both by the lender and the borrower. While not equivalent in several respects to capital, it may be called its substitute to a considerable extent. It is given consideration by the lending agencies in connection with poultrymen's financing, and it should be taken into account more fully by the prospective borrowers contemplating expansion of their business venture.

Membership in a cooperative operating under an effective marketing agreement has a distinct favorable effect upon an individual's standing as a credit risk.

### Production Loan Service

Utilizing this feature, as well as the security offered by the annual egg deferred payment and feed refund accruing in favor of its members, the Poultry Producers of Central California have organized a production loan service for its members which has been in successful operation for the last 3 years. This service, conducted under a cooperative arrangement with the several production credit associations operating in central California, is based on the intimate knowledge on the part of the poultry association's branch managers of the members' financial standing, character and nature and extent of their individual operations.

### Character as Loan Basis

Loans up to $500 may be made without any physical security, being based upon the character of the borrower.

Applicants are given assistance in the preparation of their loan papers at the nearest branch of the Poultry Producers of Central California, which often is more conveniently located to the poultryman's home and place of operation. Analysis of the prospective borrower's situation in the light of principles dealt with in this article facilitates the task of the production credit association in passing upon the applications and it also serves the applicant in helping him to determine the advisability and advantage of incurring the obligation of a production loan.

The poultry association's task is not ended with its assistance in the making of the loan, because it services the loans after they have been made and continues to act as an intermediary between the borrower and the production credit association whenever necessary.

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## *Poultrymen Should Know When to Stop Expanding*

During the last few years, there has been a strong tendency toward the development of very large poultry farms. Many poultrymen seem to be bitten with the desire to be bigger than their neighbors. It is the same old story of "keeping up with the Joneses" that has brought many a good poultryman to ruin.

It is not increasing the size of a poultry farm that makes it profitable, but rather the increasing of the return on each dollar invested. Most of these large plants brood vast numbers of chicks in large units, sell their broilers "on the hoof" for what they can get, and sell their eggs through commission houses and auctions at the prevailing wholesale market price. The margin of profit is extremely small per dollar invested and their only hope of making a satisfactory living is by having an extremely large plant. This is all very well as long as the tiny profit is maintained, but just as soon as unfavorable conditions occur, this profit becomes a loss, and another mammoth poultry plant is on the rocks.

What is the alternative? We believe it is a wise poultryman who expands his operations more intensively. He builds up and increases his volume of business not through more buildings, more hens, and more grain bills; but rather through better marketing of his product. He sells his broilers and fowl dressed to a retail trade. His eggs are sold at the door or through a weekly egg route. He increases the gross business without increasing his investment. The margin of profit per dollar invested is greater, and at times of stress his profit is reduced but not wiped out. It is a smart poultryman who knows when to stop expanding.

—E. N. Larrabee, Poultry Tribune, June, 1939.

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❝ FRESH eggs, thank goodness, require no half-true claims, no half-baked statements of the pseudo-scientist to gain a place on America's table. Packed in nature's own container, untouched by any hands, prepared for use, the egg is a natural, protective food that ranks close to the top in the list of dietary essentials. And when properly prepared, fresh eggs are every bit as delicious to eat as they are important to our health and well-being. Eggs, like milk, are truly one of nature's most valued gifts to man.

—From "Eggs—100 Tempting Ways to Serve Them," New England Fresh Egg Institute.

# A Study of Poultry Costs in San Bernardino County, California

*Condensed from Pacific Rural Press*

THAT poultrymen fared better in 1938 than in other recent years is brought out in a poultry cost and efficiency study of seven flocks in San Bernardino County, California. All of the flocks were of good commercial size, averaging 1,482 hens. The seven flocks averaged 179 eggs per hen, which was considerably higher than the 7-year average of 141 shown in previous studies. Mortality this year was 19.5 per cent, compared to 31.4 per cent for the seven years.

### Production Cost Was Down

Although the average price per dozen eggs sold was approximately the same, the net cost per dozen was nearly six cents less than the year before, resulting in a management income of 6.4 cents per dozen as compared to a loss of .3 cents. Income above total expenses in 1938 was 96 cents per hen, whereas the previous 7-year averages showed the total income to lack 3 cents per hen of paying total costs. Farm income per hen in 1938 was more than double that of the 1928-1934 average. The most profitable flock averaged $2.18 farm income per hen. The next three highest did nearly as well, averaging $1.95 to $2.00 farm income.

All flock owners in this study raised their own stock, except one who purchased pullets.

### Mortality Well Below Average

Mortality was comparatively low except for one flock which averaged 45.9 per cent. The records averaged 19.5 per cent mortality as compared to a 7-year average of 31.4 per cent.

Feed costs averaged $2.05 of the $3.23 total cost. The percentage of mash fed this year ranged from about 50 per cent to as high as 70 per cent of the total ration. The average of all flocks was 57.4 per cent of all mash fed. The average price paid for mash varied from $1.94 to $2.21, averaging $2.03. The average cost of grain was $1.38.

The eggs sold included 69.4 per cent large eggs, 21.2 per cent mediums; and small and commercials and those for home use amounted to 8.3 per cent. A total of 1.1 per cent of the eggs were sold for hatching purposes. The average price received for all market eggs varied from 23.3 cents in one case to 26.1 cents in another. The net cost per dozen eggs was 18.5 cents.

It is interesting to note that most of the growers culled every month; all houses were equipped with cement floors; none of the houses used dropping boards; lights were used in all cases; all of the producers had been in business for eight years or more.

### *Summary:*

| | |
|---|---|
| *Size of Flocks* | *1,482* |
| *Av. Egg Yield* | *179* |
| *Per Cent Mortality* | *19.5* |
| *Profit per Hen* | *.96* |
| *Feed Cost per Hen* | *$2.05* |
| *Cost per Doz. Eggs* | *.185* |

Pacific Rural Press, 83 Stevenson St., San Francisco, Calif.
(Pacific Rural Press, April 1, 1939)

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# Diary of a Poultryman

By P. S. White
Wayne County, Ohio

**June 1**—"What is so rare as a day in June?" Well, for one thing, to have no dead stock for a day at this time of the year. That would not only be rare but would be well nigh a miracle.

At present I am getting a slight back wash from all those heavy rains a few days ago. The back wash is in the form of a slight touch of coccidiosis. Not bad, 'tis true, but just some sticking around. It is apparently only hitting the weak chicks, so I don't consider the loss very great. There were two to incinerate this morning and they probably should have been burned several weeks ago. I suppose I am too chicken hearted. Just give them a few days more of grace seems to be my policy or I will pick that one up tomorrow. But somehow tomorrow never comes.

**June 3**—Grass, that is what chicken manure will grow. In fact, it will grow well nigh anything, but it does grow grass to perfection. There are two cows and four calves pasturing on an acre and a quarter, and the grass grows faster than they can eat it. My neighbor, James Mowrey, told me last night that he had expected the grass in the pasture to be burned out by now. He thought 20 tons of manure to the acre would have burned anything. But the secret of the whole program was in applying the manure early in the season. Then nature has time to take her course.

**June 4** — Garden sass is coming through the soil, sweet corn, peas, beans and what not. The small, west garden, which was planted several weeks ago, is now functioning in a small way.

Speaking of small things. There were two more small chicks dead today. They were runts of the runtiest order. The week's accumulation of dead stock was burned this afternoon and the fire laid for the next batch. It is surprising what a small amount of fuel it takes to burn a charge of stock if it is gone about in the right way.

Today's droppings were scattered on the soybean patch. The soil has been too wet to plant the beans, but it should be dry enough next week.

**June 6**—It has been a busy Monday with lots of work accomplished. First thing this morning, all hands went out on the range to care for the chicks. The water fountains and the remaining hoppers were all set outside. Then the litter was shaken up and leveled. It was as dry as the proverbial bone except in a few spots.

Really, it is surprising how much water 500 chicks of this age will drink. It is necessary to fill each 10-gallon fountain twice a day in order that there be plenty of water the first thing in the morning.

Late this afternoon I took the eggs to the Auction. It makes a more even distribution of labor if the boys have eggs on hand when they start work Tuesdays. Monday afternoon delivery puts me two days ahead.

**June 7**—Glenn Sommers, from Mt. Hope, about 40 miles south of here, was a visitor today. Glenn comes around about twice a year to talk shop. He told me that he felt that his

Unpublished material prepared for Everybodys Poultry Magazine

forced molting of March hatched pullets had been a success. They are practically through the molt now and have started to lay, producing about 40 per cent at present. It will be interesting to see when they molt again. His young stock is coming along in good shape and he hasn't had very much trouble with coccidiosis.

I have never tried forced molting. It seems that I usually have enough trouble to keep them from molting, let alone giving them the "works," so to speak. In fact, it seems to me that every day this business gives me the works. Whenever I beat the game, it is an event well worth remembering.

**June 9**—I just didn't realize what a powerful stimulant chicken manure was to grass until today. Of course, I knew that it would make grass grow, but it dawned on me this afternoon that it made "the weak grow strong and the strong grow great." Harold Stull came over with a mowing machine to clip the pasture grass. It should have been done earlier, but he couldn't get to it for the press of other work. In the meantime the grass had grown about 18 inches high, even though two cows and four calves had been pastured on an acre and a quarter for several weeks.

**June 10** — It rained practically all day, a slow, drizzling rain. Egg day, but I don't care to get the truck and egg cases wet, if there is any reasonable way to avoid it. I have until tomorrow night at 9 o'clock to get them to the Auction, and tomorrow is another day. The clouds cleared away and sun came out late this afternoon, so the prospects are good for tomorrow.

The boys are taking a great deal of pride in their ability to swing a scythe. They were mowing the grass along the drives and around the block house. It is really an art to be able to mow close with a scythe. One of the prime requisites is a thin, sharp blade properly balanced. Queer but true, there are some places where we encourage grass to grow and other places where we try to kill it. As soon as it gets dry and hot, we are going to give that grass which is growing in the center of the drive the salt brine treatment.

**June 11**—I made the trip to town with the eggs as planned this morning. No rain but just one of the very few good growing days so far this year. The return load was chick mash and whole corn for the hens, 1,200 pounds in all. I figure that this is a load for a half-ton truck. So many people tell me that I can haul a ton on it easy. Probably so, but I was bathed in that creek several years ago, when I had the old truck. I overloaded it to such an extent that the repair bill was just like standing under a pile driver. It was a liberal education, but quite costly. In fact, I could have made several extra trips much cheaper than the overloading.

**June 13** — Well, the soybean patch has been harrowed, disked, rolled, fertilized and planted. If anyone around about has soybeans for soilage (cutting green), we should have them. Friday we will start to top dress them with chicken manure, even before they are through the soil.

I have noticed for the past few nights when I locked the chicks in the houses that they were somewhat nervous. Tonight I just sat out with the gun to see what would happen. The net result was not hardly enough rat to pick up. Shooting at 15 paces with a hard shooting shot gun is about like swatting a fly with a maul.

**June 14**—Dr. Kennard of the Ohio Experiment Station was out today. I had a headache when he left. He drafted me to make the commercial poultryman's talk at the Station, July 28, when Poultry Day will also be the pre-anniversary of the World's Poultry Congress, which is to be held in Cleveland in 1939. Ohio's Governor, Cleveland's Mayor, Director Ramsower of the Extension Department, Director Secrest of the Ohio Experiment Station, Professor James E. Rice, President of the World's Poultry Congress are on the program.

**June 15**—I didn't sleep very much last night, but I had the whole works doped out by sun up. I am going to "high ball" up to Cleveland in a day or so to see Sidney A. Edwards, the Managing Director of the Congress, and simply ask him what it is all about. I never saw a World's Poultry Congress; I am just a little small town fellow. I submitted my idea to Dr. Kennard and he thinks it is the correct method of procedure. It makes no difference how high one flies, one hits the ground sometime. I snapped out of my bewildered state of mind long enough to bring home a load of feed.

**June 16** — Last night we selected two coops of market hens for today's live Auction. I was waiting on the platform this morning when the boys came to work. It didn't take long to weigh the hens in, put on a load of empty cases and get home—not at 35 miles an hour in my new truck. That new truck cover the roads like the dew covers Dixie. Kid White, she is the better half, has made a blanket for the truck. The blanket covers the bed, flare-out sides and both rear fenders. It prevents the paint being chipped when hauling egg cases, coops and feed. A new truck costs too much for me to get it banged up while it should still be new.

**June 18**—Well, if it isn't my birthday. Seems strange to me that no one has thought of it. Perhaps "Kid" White has some kind of a trick up her sleeve and is counting on having a big dinner tomorrow, that's Sunday.

I made a special trip to town this afternoon for feed. The fear of running out of feed over the week end is always with me.

There is a squirrel out on the range that takes special delight in tearing through a group of chicks and scattering them to the four corners of the ranch, I have watched him perform and I am positive that he does it for the sport of seeing the chicks scatter. It is somewhat like a small boy, a toad and girls.

**June 20** — The portable hammer mill came around this morning and we ground several tons of corn cobs. Ground cobs are great material to scatter on the dropping boards after cleaning, to use on battery pans and to use behind the cows. We usually store five or six tons during the summer for winter use. A letter today from Sidney A. Edwards, Managing Director of the World's Poultry Congress, inviting me to go up to Cleveland to see him after the 28th of this month. He also sent me, under separate cover, several pieces of Congress literature. In everyday language, the World's Poultry Congress will be a World's Fair of the Poultry Industry.

**June 21** — I notified the Auction folks, when I delivered the eggs, that I would be on Thursday's live poultry sale in rather large numbers. Am planning on taking in ten coops, 300 birds. These young roosters, and they are roosters from the amount of feed they eat, are beginning to weigh around a pound and a half. The way they crow and tear around is flies in my soup, and I don't like it—nohow.

I have been invited to be one of a party of four to go from our Auction to visit the first sale of the Versailles, Ohio, Egg Auction on July 7. President Lott, Director Buss, Manager Treat and I will be the goodwill ambassadors. "Red" Crooks, our former inspector, is managing Versailles.

**June 22**—In the west house, at the 9 o'clock gathering for the past three days, the count has been 99 eggs. It is a coincidence, not happening often.

**June 23**—I was out on the range at 4:30 this morning—catching out cockerels. We weighed the first coop this morning to check on our "hefting." That is the way I pick them, by hefting for size. The test coop averaged 1.7 pounds, so we proceeded to pick 300. The entire lot averaged 1.6 pounds when weighed in at the Auction. There was going to be a big live sale today, so the price is problematical.

**June 24** — Those "air" roosters didn't bring very much on yesterday's Auction, which is a fact that can't be disputed. It is also a fact that they won't eat anymore of my feed. Queer, but the rest seem to be eating as much feed as the original gang. There will be a time when the remainder won't eat as much feed, for I am getting ready to mow those roosters down. The correct word is cockerel and not rooster, but the way they crow, fight and tear around, I think that the term rooster is more appropriate. I believe that a young Leghorn rooster is one of the meanest animals living.

**June 27**—They don't seem to have much life when they are half drowned by one of these hard driving local cloud bursts. That is what happened today when a quick rain came up and got a bunch of chicks so befuddled they couldn't find the door of the brooder house. I found them, plastered against the side of the house taking the elements as they were. The line of reasoning is that they couldn't "see the woods for the trees." But it was nice and warm under the hovers of these tin can oil burning brooder stoves. It doesn't take long to thaw out under the hover. I never will forget the night I curled up under a brooder stove and went to sleep. I drank a barrel of water the next day. Even the marrow in my bones was dry.

**June 28**—Kid White and I are going to Cleveland tomorrow. We are going to do some shopping and then I am going to see Sid Ed'ards, as the natives are calling him. Shopping, well, I guess yes, if I am going to speak from the same platform as Ohio's Governor Davey and Cleveland's Mayor Burton and Cornell's James Rice, I need a new suit. Kid White says she needs some clothes, too, so it will be one of those rare one-day vacations.

**June 30**—The same old daily grind today; same old nose, same old grindstone. It just doesn't seem possible that I am the same bird who stepped so high, wide and handsome down Euclid Ave., yesterday. Did a bunch of shopping, saw Sidney A. Edwards of the World's Poultry Congress — saw lots of other things too. I am not going to say what time we got home this morning, but the point is that we did get home. Tired, can hardly drag, but lots of pleasant memories. When Kid White and I do get a chance to play, we play hard.

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*Here's Some Practical*
*Information About . . .*

# Coccidiosis Today

Cliff D. Carpenter

*Condensed from American Poultry Journal*

COCCIDIA are perhaps the most universally serious parasites that attack the animal kingdom; the horse and mule are the only farm animals that seem to escape these parasites. Chickens, turkeys, ducks, geese, pigeons, pheasants, and many wild birds, including sparrows, all harbor this minute microscopic parasite, which is so small that a thousand of them laid side by side measure less than one inch.

Each kind of coccidia has its own host and none is able to establish itself in any other animal in sufficient numbers to produce coccidiosis.

### Seven Species of Chicken Coccidia

Of seven species of coccidia that attack chickens, only two have been found to be really dangerous. One of these Eimeria necatrix, finds the mucous membrane lining of the small intestine a suitable spot to dig into, and, if large numbers are picked up at one time, an acute bloody type of coccidiosis results, or if smaller numbers are eaten, there is a prolonged chronic form of the disease.

Activity of this parasite in the intestinal membranes ruptures thousands of tiny blood vessels, resulting in a great loss of blood, often fatal. On autopsy, the small intestine is found considerably enlarged and the walls are very thin. Small white areas about the size of a pinhead can be seen in the walls from the outside. Large masses of blood are found in the intestine.

This type is not so widespread and destructive as the acute cecal type which invades the blind pouches and attacks chicks, usually between the ages of 4 and 8 weeks.

### Eggs Live a Year

The coccidium of greatest economic importance to the poultryman, is called Eimeria tenella. This parasite is discharged in large numbers from the ceca of affected chicks and also by hens which may be immune to further attacks of coccidiosis, and known as "carriers." These coccidia find suitable protection in the litter and soil.

For the first day or two, they are harmless, for like any other egg, before they can hatch, they must incubate. Directly exposed to the sun, they are quickly destroyed, but because of the protection of the droppings, most of them escape this punishment, and in a short time they are ready to start their life cycle all over again. Other chicks in a given brood may pick up these newly incubated eggs, or these eggs (oocysts) may remain alive but inactive in the soil or litter for many months, and yet be infective when eaten by a susceptible chick a year later.

### May Gain Natural Immunity

Within the chick, infective agents are released from the eggs; they

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travel the length of the small intestine—30 to 50 inches depending on the age of the chick—into the blind pouches, or ceca, and penetrate the lining of the mucous membrane. Here they produce large numbers of other infective forms. Large numbers of cells are invaded and tiny blood vessels ruptured, releasing blood which escapes from the walls and becomes mixed with the cecal droppings. The amount of blood seems to be determined by the number of coccidia picked up by the chick during a comparatively short time. If only a few at a time, the chick is not seriously affected, and these mild attacks produce a natural resistance against later and heavier attacks. This increased resistance is called "natural immunity," and it is this phenomenon which undoubtedly avoids wholesale catastrophies in the poultry industry from this parasite.

When the poultryman first sees coccidiosis, he may notice a loss of appetite, ruffled feathers and paleness of the head. If, on the other hand, a mass dose of say 100,000 incubated coccidia eggs (oocysts) is picked up by a susceptible chick within a short time, perhaps over a period of 1 to 3 days, then the first evidence of coccidiosis is bloody droppings. In milder attacks, the chick may linger several days or several weeks, finally wasting away and dying. In the acute type, however, death may occur from loss of blood within 24 hours after the first blood appears in the droppings.

### Milk Products Important

Beach, of California, did much of the early work in coccidiosis control. His recommendations 20 years ago included removing the mash and drinking water, and giving only grain and buttermilk for 1 to 2 weeks. He suggested changing the litter daily, and, since the bloody droppings are not infectious the first 24 hours after they are expelled, this routine largely limited further infection.

Not long afterward, mashes containing as much as 40 per cent dried skim milk or dried buttermilk were introduced, replacing the liquid buttermilk and grain. Contrary to popular belief, the milk did not fight coccidiosis by the production of lactic acid, but merely sustained life during the critical 10-day period that the coccidia remain active within the chick.

The next great step in coccidiosis control came with the production of dried cheese whey, a substance from which the milk proteins had been largely extracted, but which was very high in lactose, or milk sugar. This product fed in the mash in proportions considerably less than 40 per cent overcame detrimental effects caused by forced growth and retained the appetizing, nutritious benefits.

About three years ago, the University of Wisconsin published a preliminary report on the value of flowers of sulphur when fed in the mash from 2 to 10 per cent in preventing and curing coccidiosis. Herrick and Holmes of that station concluded that sulphur was of no value to the already infected chick, but when fed for several days to several weeks before infection, would protect against mass doses of 100,000 or more incubated Eimeria tennella oocysts. They concluded, however, that flowers of sulphur sufficiently interfered with normal growth so that serious results followed any prolonged feeding of this apparently inert drug.

### The Use of Sulphur

The writer compared flowers of sulphur, sulphur flour, and aqueous colloidal sulphur in their effects on growth and the comparative protection against artificially administered doses of coccidia. The result showed that sulphur flour, which is finer than flowers of sulphur, gave better protection than flowers of sulphur in the same quantity, but more seriously affected the physical condition of the chicks. The colloidal sulphur in liquid form, fed in the drinking water, could not be given in large enough quantities to be effective, but when 3 per cent (a 10 per cent solution) was added to the mash for 5 days before the chicks were infected, protection against doses of oocysts up to 25,000 was granted. More work needs to be done under field conditions before the product can be recommended.

Losses from an attack of coccidiosis depend upon: (1) number of chicks affected in the beginning, (2) number of coccidia each affected chick has eaten, (3) early diagnosis of the disease, (4) removing the birds from the source of infection, (5) isolating or destroying the sick birds, (6) proper nursing and care during the 10 days following the first evidence of the attack.

### "Clean" Ground Necessary

Often the disease may be diagnosed when only a few chicks show symptoms. Using proper measures promptly results usually in a limited loss. After chicks are 3 weeks of age, poultrymen should be on guard constantly for the next 5 weeks for evidence of coccidiosis.

Since coccidia live over from one year to the next in the soil, chicks should be brooded on ground that has not been used for either chicks or hens for at least 2 years, nor should any poultry manure be used on this ground during this period. Such procedure guarantees that every coccidia egg will be dead, thus eliminating the chief source of infection. The brooder house should not be too close to the hen house or other places where adult chickens may run, since coccidia oocysts may be tracked from the hen house litter and yards over to the brooder house. Where practical, the person caring for the brooder house should not contact older birds. A pair of overshoes or rubbers may be placed at the brooder house door and used only by the person caring for the chicks, and left at the door upon leaving. Visitors should not be permitted inside the brooder house or yards.

If brooder houses are not movable and clean ground is not available, chicks may be confined to a sun porch made of heavy hardware cloth, cement, or boards, but if any solid material is used, it should be kept as clean as the brooder house itself.

### Coccidiosis Not Inherited

Coccidiosis is not inherited. Even when oocysts were placed on the egg shells at the time of incubation, infection of day-old chicks did not occur from this source. After the brooder house has been scraped, swept, scrubbed, and scalded with a hot lye solution and clean litter placed on the floor, you have given the birds a good start without exposing them to the hazards of coccidiosis.

Any chick that is out of condition between the ages of 3 and 8 weeks should be killed and examined for evidence of coccidiosis in the ceca. Fresh unclotted blood, mixed with cecal material may be in evidence, or if the chick has not eaten enough coccidia to produce a large volume of blood, one may find very little blood mixed with a grayish-white mucus, often in the form of a plug, which in severe cases may fill the entire cecum. Or, with a sudden attack there may be no droopy chicks, in which case, watch out for evidence of blood in the litter and on the mash hoppers. If there is any doubt, several suspicious looking chicks should be examined by one qualified, or sent to a laboratory for examination.

### When the Disease Occurs

If coccidiosis is diagnosed, chicks should be confined to the brooder house. If the cockerels have not been removed, separating them at this time is of great assistance in controlling the disease. All chicks showing signs of the disease should be removed to separate quarters or killed, since most of them discharge large numbers of oocysts.

Best results seem to be obtained by removing the regular chick ration and feeding nothing but a flushing mash for an entire day. Allow plenty of water and keep the chicks warm, permitting adequate ventilation. The next morning, the litter should be removed and the floor swept. Replace a small amount of litter, just enough to keep the floor dry and warm for a day or two. This 2nd day, the chicks may be fed their regular chick starter. The 3rd day, feed the flushing mash again, but for a half-day only, giving the regular starter in the afternoon. On the morning of the 4th day, change the litter again and feed regular mash for that day. The 5th day, use the flushing mash again, but only for 2 or 3 hours. If these steps are carried out in detail, coccidiosis seldom becomes unmanageable.

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## *Vaccinating Fall and Early Winter Hatched Pullets*

Chicken pox vaccination becomes a perplexing problem when pullets are hatched out of season. The late fall and winter hatched pullets reared partly or entirely in confinement come into production before spring weather offers a favorable opportunity for vaccination. Experience to date would indicate that such flocks are not apt to contract natural chicken pox, provided the old stock on the farm has been properly vaccinated. It would seem best to delay vaccinating such stock just as late in the spring as possible in order to obtain favorable spring conditions.

The fact that production has already started does not seem to be any particular drawback. Several cases have been under observation during the past few years where pullets had started to lay heavily before they were vaccinated. In all of these cases production continued to gain each day during the vaccination period without any apparent upset in the appetite, physical appearance or egg production of the pullets. With winter hatched chickens it would seem to be an advantage to wait until production starts rather than to vaccinate as early as possible.

If pullets are to be moved out they should be moved out for a period of two or three weeks and become thoroughly accustomed to outdoor conditions before they are vaccinated.

Chicken pox vaccine rather than pigeon pox vaccine should be used at this time of year as chicken pox immunity developed is desired for next fall and winter rather than for immediate protection.

—Roy E. Jones, New England Homestead, May 6, 1939.

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# Teaching Poultry Husbandry by the Project Method

By Richard Leach
California State Polytechnic School

*Condensed from Poultry Science*

OUR efforts have been devoted to training the college man to go back to the farm or into the commercial plant with the necessary experience and technical knowledge for more efficient production.

### Start Major Work as Freshmen

The freshman at California Polytechnic begins his major work in poultry right in the first quarter, and carries five or more credits of poultry major for each quarter while at California Polytechnic. A total of 63 quarter credits in poultry major is offered in the three years' work in addition to six credits in general poultry mechanics, six credits in poultry farm structures, and nine credits in poultry carpentry. All other related courses such as the biological sciences, English and economics are taught to supplement the student's major and to give him a broader training in agriculture.

### Study Commercial Problems

The major courses in poultry husbandry are centered almost entirely around the problems of the commercial poultry plant. The entire Polytechnic poultry plant is student-operated, giving each boy actual productive project or supervised practice work. Courses such as feeds and feeding teach the student the basic requirements of nutrition, how to compound and prepare a ration, then finally to study the results of feeding in his project work.

Our plant of more than 2,000 birds gives us excellent facilities for practical training. The unit is operated as much as possible as a commercial plant with each student doing his share in its operation and management. Each year, we pedigree-hatch about 2,500 chicks with an equal number of flock matings. We trapnest about 750 to 800 pullets each year, keeping accurate records of all individual and family performances. Each season we raise several hundred meat birds for market and about 300 turkeys. During the past year, we made about 6,000 different sales and dressed about 2,000 birds for market in the project program.

### Students Do the Work

The entire care and operation of this commercial plant is done by the students except for some of the pedigree work and supervision provided by the staff. Each student selects a pen or unit or some phase of the operation and carries it as his project. He is entirely responsible for the care and management of his project and he shares in what returns or profits his pen earns. Last year we had a total of 20 projects in eggs production and 21 in brooding. The students made a total of $1,190 as their labor income. All operations in the plant are carried on by the use of a revolving project

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(Poultry Science, May, 1939)

fund. In addition to the student earnings through their projects they were also paid from the earnings of the plant, $1,250 for labor such as marketing and odd jobs around the plant.

### Each Student Plans a Budget

Each student's project is separate so that he can keep an accurate record of his operations. At the beginning of the project he makes a budget and plan of his anticipated operations for the year. He purchases his feed each Monday for the weekly requirements of his pen from the cooperative feed room. Each evening he cleans and brings in his eggs to the cooperative egg pool operated by fellow students. The eggs are graded and sold to the best advantage, then a credit tag is issued to each student for his eggs on a graded basis.

The project record book shows the per cent production, feed cost per dozen, per cent large extra eggs, pounds of feed consumed per 100 hens per day, and mash-grain ratio. His record also includes the post-mortem findings of any birds that die as well as other records of production.

Those pens that are mated for hatching purposes give the student additional experience in selecting hatching eggs, care of the males, and an opportunity to compare the hatching results of his pen with others in the plant. During the laboratory periods, as well as before and after class hours, he learns the operation and management of the 12,000-egg cabinet incubator at the plant.

The students also gain actual practical experience in vaccinating, blood-testing, and culling. Each operation is done so many times during their course and at a time most applicable to good commercial practices that they become quite efficient in these operations.

During the junior or last year, the students may elect each quarter to work toward one of the advanced certificates by taking the seminar courses. These are advanced courses in management requiring special skill and ability as well as supervised practice work. During the fall quarter he may take turkey production. This includes two weeks of supervised practice in a commercial turkey plant and a thesis involving a complete program worked out for the management of a commercial turkey ranch. Usually the department head arranges to send each young man to some of the state's leading turkey ranches for a week as sort of an apprentice. Here he works in all phases of the ranch's operations.

The students then spend a second week with one of the large turkey dressing and grading plants. Here they spend one day with the pickup truck, bringing birds from the ranches, then a day in sticking and scalding birds. They go through all operations of picking, wrapping, grading, and packing, even to following the finished product to market. In all cases, they participate in the various operations.

Their thesis or term paper includes the organization and managerial set-up for a complete commercial sized turkey ranch of 2,000 to 3,000 birds. They work out their map and farm layout, methods and costs of producing poults, feeding methods and food formulas, and brooding and rearing procedure. The whole farm program is worked out in detail to the point of efficiency factors such as the total cost of producing a pound of meat, labor cost per pound, and overhead cost per pound.

The winter quarter seminar course requires one week's practice in one of the large commercial egg plants, usually of 30,000 to 40,000 birds, then a week at one of the large specialized pedigree breeding farms. Here they learn various methods of operation supplementing their earlier class and project work. Their thesis for this course is an outline of the operation and management of a diversified commercial poultry ranch. If they have a home plant to which they plan to return after graduation the program is worked out with that in mind; otherwise it is for the type of ranch that they hope to own in the future. The ranch for this plan includes at least 2,000 laying hens with facilities for the production of their own chicks, the raising of at least 1,000 meat birds and at least 200 turkeys as well as a home garden or orchard.

### Plan Entire Year's Work

In this plan the entire year's operation is worked out so that it involves all phases of production as well as the business operations such as marketing, financing and record keeping.

The spring quarter seminar course is in hatchery management. In addition to the supervised experience here in commercial hatcheries, they prepare advertisements for various types of publications. They also prepare news stories and a complete record keeping system for their hatchery. They work out a breeding program for their own flock and arrangements for cooperating between flock owners. There is considerable opportunity here to develop originality in their bill board signs, follow up circulars, and hatchery catalogs as well as arrangements of their hatchery, poultry plant, and sales procedure.

### Students Aim to Own Ranches

This system of teaching poultry husbandry by the project method encourages the young men to go back to the farm or on producing ranches after graduation. We find nearly 90 per cent of our students have a ranch of their own as their goal in life. In fact, about half of them go home in business for themselves or to help dad following graduation. The rest seek employment with ranches and hatcheries to gain more experience and to gain capital before starting their own enterprises.

Placement of recommended students trained in this manner has not been difficult; in fact, there have been two or three positions open to each graduate. Graduates begin in lower salary positions, but make rapid progress. A survey shows that practically every graduate has moved to a higher position than the one in which he was placed within six months. Some with exceptional ability have moved to superintendents' positions with 6 to 20 men under their supervision within two years from graduation.

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## *Protection to Skin When Creosoting*

It is a good plan for the person who is going to do a cresoting job to oil the hands and face well before starting (linseed oil is quite suitable for the purpose). This prevents any blisters or reddening of the skin. It is much simpler to use the oil as a preventive than to employ treatment afterwards. The irritation from creosote can be most painful, and in warm weather it can be caused by the fumes from the creosote just as readily as by splashing.

—R. M. C., Poultry World, London, Mar. 24, 1939.

# QUESTIONS AND ANSWERS

## Laryngotracheitis Symptoms

**Question** — I understand a disease called laryngotracheitis may attack young birds from six to 10 weeks old. What are the symptoms and what should I do?—S. O., Ark.

**Answer**—Yes, laryngotracheitis attacks young birds, and it often appears, too, among the layers in the early fall and winter. The birds will stand with the head extended gasping for breath. There may be a rattling noise in the windpipe. If you will examine birds that have the disease, you will find that the trachea and larynx will be inflamed and red, with a cheesy substance loosely attached all along the trachea.

If laryngotracheitis is present in your neighborhood, the best thing to do is to vaccinate the young stock. The vaccine may be obtained from any one of a number of reliable companies.

—Poultry Tribune.

## Blackhead Not Hereditary

**Question** — Last season, we lost some turkeys in our market flock from blackhead. A few of the birds we kept over for breeders also died with blackhead and others had it but recovered. Will the hens that had the disease pass it on to their offspring through the eggs?—Mrs. K. G., Colo.

**Answer**—According to the best information available, it is not possible for the turkey hen to transmit blackhead to her offspring through her eggs.

—Poultry Tribune.

## Early Molters

**Question**—Will hens that stop laying and start molting in May and June be back in production during the late summer and fall months when the price of eggs is higher?

**Answer**—As a rule, hens that stop laying and start molting in May, June or July are slow molters and low producers and should be culled at this time. Birds that molt at this time of the year are very often out of production from four to six months. If these early molters do get back in production during the late summer months they usually go through a second molt later in the fall and as a result very few high priced eggs are produced.

—Noel Bennion, The Eggsaminer.

## Sunflower Seeds for Poultry

**Question** — Are sunflower seeds a good feed for poultry?

**Answer**—If a poultryman has sunflower seeds available they can be used to supplement the regular ration. They should be used as a supplementary feed and should not replace any of the ingredients of the regular ration. Sunflower seeds contain 16 per cent protein, 21.4 per cent carbohydrates, 25 per cent fat, 30.6 per cent fiber and 3.4 per cent ash. The average laying ration consisting of 50 per cent mash and 50 per cent scratch contains approximately 20 per cent protein, 4½ per cent fat, 5.75 per cent fiber, 8½ per cent ash.

By comparing the analyses of sunflower seeds with a laying ration it can be seen they are too high in fat and fiber to be used as a regular part of the ration.

—Noel L. Bennion, The Eggsaminer.

## Rape for Pasture

**Question**—I have heard that rape is not a good pasture crop for chickens. Is this true?—L. M. T., Mo.

**Answer**—Rape is a very fine range crop for growing chickens. It can be grown easily and quickly.

Laying hens should not be ranged on rape, particularly if the eggs are to be sold on a graded market. Rape produces dark, greenish yellow yolks and greenish albumen.

—Poultry Tribune.

## Getting More Summer Eggs

**Question** — What can be done to stimulate egg production during the summer months?

**Answer** — One essential factor in maintaining summer egg production is increased consumption of laying mash. This can be done by reducing the amount of scratch grain fed, and keeping a fresh supply of laying mash before the birds at all times. A moist mash or pellets fed at noon as a supplement feed will increase mash consumption.

A large part of a hen's body is water, as well as the egg she produces. Experimental results go to show that there is a close correlation between water consumption and egg production. So clean fresh water should be kept before the flock at all times.

Another factor that is important in maintaining summer egg production is a poultry house that is well ventilated and insulated. When the temperature gets above 80 or 85 degrees there is a rather sharp decline in egg production and also in the size of the eggs. The percentage of flock production can be greatly increased during the summer months by culling the entire flock in June. Birds which stop laying and start molting in May and June should be eliminated.

—Noel Bennion, The Eggsaminer.

## Age of Birds in Laying Tests

**Question** — When are the chicks hatched for the laying contests, and how old are they when they are entered?—W. H. R., Pa.

**Answer**—The date at which breeders hatch their chicks to be entered as pullets in the laying tests depends entirely upon the age at which the particular strains mature. Most heavy breeds take a little longer to mature than most light breeds, and the various strains of the same breed vary in the length of time necessary for the birds to develop fully.

It is up to the individual breeder to decide how soon he must hatch his chicks in order that they can grow and mature and be ready to shell out the eggs at a fast rate starting October 1, the opening date for all standard laying tests. All birds entered are pullets, approximately six months old, in all tests except the Vineland, New Jersey, Hen Test and the Pennsylvania Hen Test which contain birds having laid a year or more prior to the time they are entered.

—Everybodys Poultry Magazine.

## Sour Crops

**Question**—I shipped several dressed turkeys to a buyer in Chicago last December, and he docked them in price because they had what he called "sour crops." What is the cause of sour crops?—G. H. T., Kans.

**Answer**—When a turkey is killed with a full crop, the food material in the crop often sours, spoiling the appearance of the bird and tainting the flesh around the crop. Starve your birds for several hours before killing, in order that their crops and, in fact, their whole digestive tract, will be as nearly empty as possible.

—Poultry Tribune.

## Sunporches for Layers

**Question**—It is not possible for me to change my poultry yard from year to year, and yet I would like to get my birds outside during the summer. Do you believe a strip of concrete about 30 ft. wide and the length of my poultry house would be the best solution to this problem?—D. C. T., Calif.

**Answer**—A concrete yard, such as you suggest, would be rather expensive, and it is doubtful if it would be entirely satisfactory, due to the fact that it would have to be cleaned often, or else become very insanitary.

The practice followed by most poultrymen, who do not have range available, is to build a wire sunporch along the front of the house. These porches are usually built the entire length of the building and about six or eight feet wide. For sunporches in front of laying houses, welded wire is very satisfactory for the floor. Several companies now make a specialty of providing welded wire and wire cloth in suitable sizes for sunporches for either chicks or adult birds. Raise the floor of the sunporch about one foot from the ground so the droppings can be easily removed.

—Poultry Tribune.

## Moldy Taste to Eggs

**Question**—What causes fresh eggs to have a moldy taste? I do not have eggs over 10 days old, often times not that old.—C. S., Md.

**Answer**—As you know, eggs absorb odors very readily, therefore if they have a moldy taste and odor, we suggest you look around for moldy surroundings. It is entirely possible that something went wrong with your storage place and a mold has developed. If that is the case, a thorough cleaning up will remedy the situation.

Feed also influences the taste of eggs, but if you have been getting good eggs on the feed that you are now feeding, a sudden change in flavor should not be due to this cause.

It might be well, however, to check to see if the birds are not picking up feed outside somewhere that is influencing the flavor of the eggs.

—American Poultry Journal.

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A NEW LONDON, Conn., boys' club, determined to send 10 members to the World's Poultry Congress in Cleveland, is putting on a "chicken collecting campaign," each farm contributing a chicken. The birds are collected at three or four towns on one day and taken the next day to the poultry auction at East Hartford, Conn. After selling 133 chickens gathered from the first group of four towns, and adding cash contributions, the boys had $167.50. They have three other groups of towns to collect from, and are confident of reaching their goal of $600.

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# *The Case of the Smothered Chicks*

Among other things, a good hatcheryman has to be a detective of a sort. He has to have enough sleuthing ability to discover the reason why, "our chicks are dying like flies."

At the scene of the tragedy everything may appear O. K. Ventilation, brooder and sanitation may check. There appears no reason for such a huge death loss. No reason until the hatcheryman detective uncovers the clue in the chance remark of: "We didn't put the chicks under the hover the first night, but jest set the boxes around the brooder stove."

Or, sister, may supply the information in a "Maw always puts 'em in boxes at night, so as they won't get cold," remark.

One time we rushed to service a brood of chicks that had been reported "gapping to death" with infectious bronchitis, only to find the cause in the ground corncob litter they had swallowed.

And there was the case of the smothered chicks. It was a freakish April day—too warm — almost like June, when the customer took out the 400 Reds.

A few hours later they were back, excited, all talking at once.

"Something was wrong with those chicks. Everyone was dead when we opened the boxes!" they shouted.

And dead they were. All of them! We opened box after box in bewildered consternation.

Singularly and collectively, with varied inflections, the customer and his family loudly denied all responsibility. Over and over they declared, "They were all dead when we opened the boxes."

It was a case for Sherlock Holmes —but finally the truth filtered through. The chicks had been left in a tightly closed car, parked in the hot sun several hours, while the family prepared and ate their noon meal. No wonder they had smothered to death.

However, when a detective solves a crime, he's done—no one expects him to reform the culprit. But a hatcheryman is different — not only does he have to do a reforming job, but he has to make the customer like it.

For it's a psychological fact that no matter how much the customer is to blame for his chick loss, and even if he knows it, if he loses your chicks, he is less likely to buy from you again.

Fair? No, Human? Yes. What to do? Sometimes you can't do anything. But sometimes you can.

"It wasn't our fault," we told the customer with the smothered chicks. "But we want to help you out anyway. If you will bring us some eggs we will hatch you 400 chicks free."

And we found it paid, for we held our customer, and got some good free neighborhood advertising — for customers talk.

—Mrs. R. V. Jared in Hatchery Tribune, Mount Morris, Ill., April, 1939.

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JONATHAN FISHER, of Carlisle, England, has been blind from birth, but he is an unusually successful poultry farmer. He can recognize laying hens by their feel, although he also traps, using Braille rings. He is so sensitive that he can tell a fertile egg from an infertile egg by detecting the heart beat of the developing embryo.

—Feathered World, May 5, 1939.

# VIEWS OF THE EDITORS

## Prices and Consumption of Poultry Meats

A special retail sale of quick frozen, eviscerated chickens was advertised in New York newspapers last week at $1.59 each for 3¼ lb. size and at 69 cents each for 1¼ lb. broilers. According to the advertisement, the 3¼ lb. bird would be equivalent to 4¼ lbs. undrawn, and, presumably, the 1¼ lb. broilers would be equivalent, let us say, to about a 2 lb. bird undrawn. The consumer, then, is paying the equivalent of 37 cents a lb. for the roaster and 35 cents a pound for the broiler on the undrawn basis.

It is granted that eviscerated poultry is as a rule a superior product, and that higher costs naturally compel a higher selling price to the public. There are, too, other advantages claimed which may or may not carry weight depending on one's viewpoint. And it is certain that the product will find an increasing outlet as time passes, chiefly because of its convenience in handling and its attractiveness.

One phase of the poultry problem as a whole, however, must be considered and that is the absolute necessity of increasing consumption to keep pace with an apparent increasing production, for all former conceptions of supply and demand have been upset completely by the tremendous eastern production during the past two years, which very evidently is here to stay.

With the prospect, then, of liberal, possibly heavy, supplies ahead of us through the next few years it would seem necessary to trim every item of cost in order to furnish poultry to the consuming public at the lowest possible price.

During the past ten years packaged food products have in many lines largely superseded loose goods, and on the basis of convenience and cleanliness this has been distinctly a forward step. Yet it equally is true that the net cost of such goods to the consumer is higher than it otherwise would be. And in poultry it follows just as truly that higher costs must be passed on to the consumer.

We hold no brief for undrawn or for eviscerated poultry, and the final answer lies with the housewives of the United States. Our thought only is that nothing should stand in the way of working toward the largest possible consumption of dressed poultry, and that the retail price factor in these days of "recession" is of paramount importance.

—The American Produce Review, May 17, 1939.

## Baby Cockerel Problem

The baby cockerel chick has been something of a hard problem. These go principally for the broiler trade. So many people have ordered sexed pullets this season, there have been large numbers of cockerel chicks to move in bulk. Prices for Leghorns have drifted as low as $14 a thousand, and occasional truckloads of surplus heavies have moved out at little more. It seems that many small producers have been scared out of the broiler deal this year, which improves the outlook for the summer market.

It is well known that the use of broiler chickens has increased greatly in the last few years. This business will be stepped up still more if the tendency for egg farmers to order pullet chicks continues to develop at its present pace. One situation that has had some possible effect on the broiler business, is the attitude of feed merchants to go on a cash basis. Up to early this year, arrangements could be made for payment of feed bills after the stock was sold.

—Frank L. Platt, American Poultry Journal, June, 1939.

## Now $70,000,000.

The turkey industry has received a boost of $20,000,000 in the status of its evaluation!

Until the present time, the value of turkeys produced annually has been estimated in the neighborhood of $50,000,000. Now, the revised estimates of the Bureau of Agricultural Economics set the value of the 1937 crop at $70,561,000, and the 1938 crop at $69,781,000.

The year of 1936 represented a sort of turning point in the industry. According to these estimates, over 7,000,000 more turkeys were grown in 1936 than in the previous year. We all well remember the chaos that existed when this unheard of surplus went to market. However, the industry arose to the crisis and moved this surplus into consumption channels.

Comparatively small reduction took place in 1937, and there was again a small increase in 1938. What happened? Nothing happened! The lessons learned in 1936 helped us to market the great crops of 1937 and 1938 at a good price.

In 1939, we probably will be faced with the problem of marketing the largest crop in history. We are prepared! Those lessons learned during the past three years will stand us in good stead to move this crop to market in an orderly manner and at prices that will allow a good margin of profit.

—Turkey World, April, 1939.

## Whose Poultry Congress Is This, Anyway?

You may not be going . . . you may have only a small farm flock . . . you may think an unnecessary lot of "fuss" is being made about the Seventh World's Poultry Congress and Exposition which will be inaugurated in Washington, D. C., July 25-26, with 36 nations of the world represented and dedicated in Cleveland, Ohio, July 28. Let's explore the question, "Whose Poultry Congress is this anyway?"

Last week, I was in Cleveland. The poultry congress Committee had a get-together meeting of committee chairmen and businessmen interested in some phase of the Congress. "A check up and check off meeting," J. E. Rice, general chairman, called it. About 130 people were in Cleveland for it. They paid their own money to get there. This is a pay-as-you-go Congress.

From early forenoon until mid-afternoon, we listened to reports. Then there were a number of impromptu talks by businessmen who were there representing various companies that deal in poultry products. The gist of the discussion brought out the fact that a lot of people around the country haven't yet gotten enthusiastic about the Congress. They seem to think it's somebody else's Congress. It isn't! It's yours. It's mine. It belongs to five and one-half million poultry raisers scattered from coast to coast.

Let's take a long range view of the Congress. Primarily, it's an educational exposition. It also will add dignity to the billion dollar poultry industry. But like the Golden Gate Exposition and the New York World's Fair, its fundamental purpose is to spread information . . . via lectures and exhibits.

The whole progress of civilization is based on information about many things. Do you believe you would benefit by more poultry information? Do you think expositions are a good source of information?

An interesting story is told about Henry Ford. He's one of the outstanding supporters of the exhibit type of education. Ford went to the 1893 World's Fair in Chicago . . . just 30 years old then. He was trying to perfect a motor driven vehicle. At the fair he saw a small gasoline engine mounted on a fire hosecart. That was the type of power plant he was trying to develop. By seeing this, he was convinced that it could be done. By 1896, he had developed his horseless carriage.

Ford gives that fair credit for two things: his car and the conviction that expositions are education. They work like this, he reasons, "Shows men's most advanced ideas to the minds of other men . . . progress is inevitable . . . everybody benefits." Since that time Ford has been a big exhibitor at every important fair, and has spent millions in addition to maintain permanent exhibits at Greenfield Village near his home city of Dearborn, Mich.

Have we had important developments in the poultry industry? Yes, indeed! "Just 25 years ago," said A. G. Philips, general sales manager, Allied Mills, Inc., speaking in Cleveland, at the meeting I attended, "I wrote a bulletin entitled, 'Setting a Hen' for an agricultural college. Today there are 12,000 baby chick hatcheries that produce over 700,000,000 baby chicks a year. No phase of agriculture has seen as many changes and undergone as much economic progress in the last 25 years as the poultry industry has."

The changes that have come in production interest you. Honestly, there are lots of things you would like to see with your own eyes. You can see them at the Poultry Congress. Like Henry Ford, you too will be inspired.

But more important is what the Congress means to you in the long-time demand for the poultry products you produce and sell. With better production facilities, market demand for a product must grow too or the supply will exceed the demand, and growth will cease in that industry.

The Poultry Congress will spread information about growing poultry successfully. It will popularize the products of this industry, eggs, poultry and turkeys, to maintain a strong consumer demand. These two things are vital to every poultry raiser . . . the little operator and the big one.

Whose Congress is it? Why, it's yours and mine. It's going to be worth every cent it costs in time and money. Let's get back of it and make it something we'll really be proud of.

—O. A. Hanke, Poultry Tribune, June, 1939.

## Fresh Egg Law

Our reasons for advocating a "fresh egg" law for Illinois are simple and easy to understand. Some eggs, as marketed, are up to highest standards of quality and freshness. Many are mediocre in quality, and some perhaps kept too long by some local buyer, are unfit for food. Under present standards they must compete with each other in an unfair conflict. The fine quality eggs bring a lower price than they should, and the unfit, even rotten eggs bring some kind of a price, more than they deserve. Some of them, as we recently pointed out, reach the retail customer. Uncertainty of quality penalizes the good eggs.

The public, represented by the housewife, develops a dubious attitude toward all eggs. An egg flattens out weakly and wearily in the frying pan. The housewife looks at it, disgusted. She hustles something else for her family breakfast, feeds the egg to the cat. Next time she buys groceries she comes to eggs, passes them by. When thousands of housewives do the same thing, the price of eggs goes down, the surplus increases, and economists begin to investigate what's the matter with the poultry business.

—The Prairie Farmer, June 3, 1939.

## *Greenish-Black Coating on Hard Boiled Egg Yolks*

In the preparation of the salad, one thing above all others upon which the housewife rightfully insists is the attractive appearance of the salad. If the particular salad calls for slices of boiled eggs, both for nutritional and decorative values, the housewife will not serve many of them or any of them if her experiences show that the egg yolk is surrounded with a greenish-black stain. Such a condition is very common and most people accept it. There are many people, however, who won't accept this condition because it detracts from the attractiveness of the food to be served to guests who are nearly always critical.

We receive inquiries from various ones who appear to be indignant because of dark covering of the yolk. Some infer it is feed; others are sure it was a storage egg; some feel it is the breed, and others are sure that they are sure — but are not certain about what.

It would be inviting suicide to tell Mrs. American Housewife that she didn't know how to boil an egg. Such a statement would be too close to the truth to be safe. Most people boil an egg on the theory that it must do a lot of traveling and bouncing around in the boiler if a good job is to be done. It really requires a very firm texture egg shell to stand the beating it has to take in some cases where it is being boiled.

A student in poultry husbandry recently asked what causes this condition of discoloration on hard cooked egg yolks, stated that he did not know but would like to find out for himself. A day or so later he submitted the following explanatory paragraph from the book "Food for the Family" by Wilmot and Batjer:

"Egg white contains sulphur and egg yolk contains iron. When eggs are cooked in the shell at high temperature, hydrogen sulphide is formed and this combines with the iron in the yolk to form iron sulphide, the greenish color sometimes found outside the yolks of hard cooked eggs. When eggs are cooked below the boiling point and cooled immediately, very little discoloration takes place."

—H. E. Cosby, The Eggsaminer, April, 1939.

# POULTRY STATISTICS

## Hens on Farms—Rate of Lay

**Number of Hens Per Flock, and of Eggs Laid Per Hen and Per Flock, First Day of Month**

| Geographic Division | Layers per flock | | | Eggs per 100 layers | | | Eggs per flock | | |
|---|---|---|---|---|---|---|---|---|---|
| | Jan. 1 | Apr. 1 | May 1 | Apr. 1 | May 1 | Aggregate Jan.-May | Apr. 1 | May 1 | Aggregate Jan.-May |
| North Atl. | | | | | | | | | |
| 1928-37 (Av.) | 96.9 | 89.7 | 85.8 | 55.3 | 59.1 | 211 | 49.4 | 50.5 | 191 |
| 1938 | 96.7 | 91.2 | 85.3 | 59.2 | 61.1 | 238 | 54.0 | 52.1 | 218 |
| 1939 | 98.4 | 89.1 | 84.3 | 58.0 | 60.0 | 237 | 51.4 | 50.5 | 216 |
| North Cent. | | | | | | | | | |
| 1928-37 (Av.) | 115.7 | 109.1 | 103.6 | 52.1 | 56.6 | 181 | 57.2 | 58.8 | 199 |
| 1938 | 102.4 | 98.0 | 91.6 | 58.4 | 59.4 | 207 | 57.2 | 54.4 | 204 |
| 1939 | 110.4 | 104.1 | 98.3 | 55.9 | 58.9 | 206 | 58.1 | 57.9 | 216 |
| South Atl. | | | | | | | | | |
| 1928-37 (Av.) | 60.1 | 55.0 | 51.4 | 51.6 | 51.1 | 193 | 28.3 | 25.9 | 107 |
| 1938 | 55.8 | 52.7 | 48.0 | 55.8 | 53.8 | 216 | 29.1 | 25.3 | 113 |
| 1939 | 59.9 | 53.1 | 49.4 | 54.8 | 53.8 | 215 | 28.9 | 26.2 | 116 |
| South Cent. | | | | | | | | | |
| 1928-37 (Av.) | 66.8 | 60.2 | 55.6 | 52.7 | 51.2 | 187 | 31.6 | 28.4 | 114 |
| 1938 | 59.3 | 56.1 | 51.7 | 57.1 | 54.3 | 210 | 31.8 | 27.8 | 118 |
| 1939 | 63.6 | 59.0 | 55.2 | 55.8 | 53.9 | 206 | 32.8 | 29.6 | 123 |
| Western | | | | | | | | | |
| 1928-37 (Av.) | 74.0 | 69.3 | 67.0 | 57.2 | 59.0 | 213 | 39.2 | 39.6 | 147 |
| 1938 | 71.1 | 67.0 | 64.4 | 57.7 | 59.6 | 223 | 38.6 | 38.5 | 150 |
| 1939 | 72.6 | 67.1 | 62.9 | 58.6 | 58.9 | 227 | 39.3 | 37.4 | 152 |
| United States | | | | | | | | | |
| 1928-37 (Av.) | 86.0 | 79.7 | 75.1 | 53.0 | 55.5 | 189 | 42.1 | 41.3 | 151 |
| 1938 | 77.6 | 73.8 | 68.6 | 57.9 | 58.1 | 213 | 42.5 | 39.4 | 158 |
| 1939 | 82.8 | 76.8 | 72.2 | 56.3 | 57.6 | 212 | 42.9 | 41.2 | 164 |

The May 1 laying flock was 5.2 per cent larger than last year, and while the hens failed by about one-half egg to reach the high score of last year in eggs laid per 100 birds, the total production per flock is up between 4 and 5 per cent. With the larger numbers and heavier production, egg and chicken prices are lower than last year. Both egg and chicken prices, however, are in fairly favorable ratio to feed prices.

April culling from farm laying flocks was a shade greater than average for that month but distinctly less than in April last year, the decrease being 6 per cent this year compared with 7 per cent last year. Average numbers of layers on farms on May 1 were more than 5 per cent greater than numbers a year ago, thus almost maintaining the gain of about 6 per cent shown on January 1. The gain in the number of layers over numbers last year is greatest in the West North Central States (11 per cent) and in the South Central (7 per cent). The gain in both the East North Central and South Atlantic States was 3 per cent. In both the eastern and western heavy commercial producing areas slight decreases from last year are shown, numbers in the Far Western States being 2 per cent below, and in the North Atlantic 1 per cent below, last year's numbers.

The average number of eggs laid per 100 hens continues high. Although not quite equal on May 1 this year to the rate in either of the past two years, it exceeded the May 1 figures for any other of the 15 years of record and is almost 4 per cent above the 10-year (1928-37) May 1 average. Production per hen was down about 2 per cent from last year in the North Atlantic States. Elsewhere it was down 1 per cent or less.

The total production of eggs on May 1 was between 4 and 5 per cent above the production on that date last year. The greatest gain—10 per cent—was made in the West North Central States. There were gains of 6 per cent in the South Central States and of 3 per cent in both the East North Central and the South Atlantic groups. The North Atlantic and Far Western areas, however, each showed about 3 per cent loss compared with May 1 production a year earlier.

The number of chicks and young chickens of this year's hatching reported on hand in farm flocks on May 1 was about 5 per cent greater than on that date in 1938 and 21 per cent higher than the low May 1 production in 1937. Average May 1 numbers on farms this year were 14 per cent above the 10-year (1928-37) average for that date and are the third largest in the 13 years of record, exceeded only in 1927 and 1930. Farmers reported in February an intention to buy 8 per cent more baby chicks from hatcheries this year than last. Assuming that the proportion of farm chicks bought from hatcheries is continuing to increase, the gain of 5 per cent in numbers of young on hand May 1 is reasonably consistent with the reported intentions to buy 8 per cent more chicks.

Barring unexpected changes in present seasonal weather and crop conditions such as occurred in 1936, the present trend appears to be toward a moderate increase of 5 per cent or more in the number of young chickens to be raised this year, to be followed by a corresponding increase of several per cent in the number of layers for the coming season. The returns for June and July must be awaited for more precise indications.

—Comment from Poultry and Egg Production Report.

## Egg Prices

**1939 Egg Prices at New York City**

| Kind | May 5 | May 12 | May 19 | May 26 | May 26, '38 |
|---|---|---|---|---|---|
| Mixed Color Firsts | 16¾-17 | 16¼-16½ | 16½ | 16¼ | 21¼ |
| Nearby and Midwestern White Premium Marks | 20½-22 | 20½-22 | 20 -21½ | 20½-22 | 25¼-27 |
| Nearby and Midwestern White Specials | 20 | 20 | 19½ | 20 | 24 -25 |
| Pacific Coast Specials | 26¼-27 | 26½-27 | 26½-27 | 26½-27 | 28½-29 |
| Nearby and Western Brown Exchange Specials | 19¼-19½ | 19 -19½ | 19 | 18¾ | 24 |

A slight downward tendency in wholesale prices of eggs was noted during May. While the average for the month during 6 of the past 10 years is slightly higher than the average for April, a lowering of prices is not unusual for the month. In 1938, egg prices moved steadily upward from early March until late in the fall, and with the change so far this year in an opposite direction, the reduction under a year ago has widened during recent weeks. In March, prices of mixed color Firsts at New York averaged ½ cent below a year earlier, April prices were 1¼ cents lower, and the May average will be nearer 4 cents lower. This grade is now quoted at 16¼ cents (May 29).

The rather unsettled condition of the egg market, and the increased supplies available, have led to the inauguration of buying by the Federal Surplus Commodities Corporation. Such purchases to date are being made on the New York Mercantile Exchange. At first, the quantities taken were very nominal, but on the Exchange sessions of May 27 and May 29 a total of 3,748 cases was taken. All of the eggs bought so far are Firsts, and the price has been 16¼ cents. Eggs bought under this program will be distributed through State relief agencies to needy unemployed.

—Comment from Monthly Egg and Poultry Markets Review.

### Farm Prices of Eggs per Dozen

(Figures given in cents)

| Year | Feb. 15 | Mar. 15 | Apr. 15 | May 15 | June 15 | July 15 | Aug. 15 | Oct. 15 | Dec. 15 |
|---|---|---|---|---|---|---|---|---|---|
| Average 1928-37 | 21.6 | 18.0 | 17.4 | 17.5 | 17.4 | 18.7 | 20.6 | 27.0 | 30.3 |
| 1937 | 20.1 | 19.9 | 20.1 | 17.9 | 17.6 | 19.4 | 20.4 | 25.2 | 26.0 |
| 1938 | 16.4 | 16.2 | 15.9 | 17.6 | 18.2 | 19.9 | 21.0 | 27.1 | 27.9 |
| 1939 | 16.7 | 16.0 | 15.5 | 15.2 | | | | | |

## Poultry Meat Prices

### Farm Prices of Chickens per Pound

(Figures given in cents)

| Year | Feb. 15 | Mar. 15 | Apr. 15 | May 15 | June 15 | July 15 | Aug. 15 | Oct. 15 | Dec. 15 |
|---|---|---|---|---|---|---|---|---|---|
| Average 1928-37 | 15.4 | 15.7 | 16.4 | 16.3 | 16.1 | 15.8 | 15.7 | 15.4 | 14.4 |
| 1937 | 13.6 | 14.4 | 15.2 | 14.8 | 14.8 | 15.3 | 16.8 | 17.6 | 16.4 |
| 1938 | 16.0 | 15.9 | 16.2 | 16.1 | 15.7 | 15.0 | 14.2 | 13.6 | 13.6 |
| 1939 | 14.2 | 14.3 | 14.4 | 13.9 | | | | | |

## Receipts of Eggs and Poultry

### Receipts of Eggs at Eastern Egg Auctions

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| May 6 | 23 | 31,272 | +0.87 | +20.07 |
| May 13 | 26 | 33,460 | –0.51 | +21.62 |
| May 20 | 26 | 32,661 | +0.26 | +29.61 |
| May 27 | 26 | 31,193 | –3.43 | +33.11 |

### Receipts of Eggs at Pacific Coast Primary Markets

| Week Ending | No. of Plants | Cases of Eggs 1939 | Cases of Eggs 1938 | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| May 6 | 64 | 75,444 | 83,707 | –0.50 | – 9.87 |
| May 13 | 63 | 74,083 | 79,470 | –1.18 | – 6.78 |
| May 20 | 63 | 71,476 | 79,738 | –2.46 | –10.36 |
| May 27 | 64 | 69,101 | 79,402 | –3.97 | –12.97 |

### Receipts of Eggs and Poultry at Central Western Primary Markets

| Week Ending | Cases of Eggs | | | Pounds of Poultry (000 omitted) | | | Pounds of Young Stock (000 omitted) | | | Pounds of Fowl (000 omitted) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1939 | 1938 | % Chg. | 1939 | 1938 | % Chg. | 1939 | 1938 | % Chg. | 1939 | 1938 | % Chg. |
| May 6 | 266,409 | 228,330 | +16.68 | 2,776 | 1,965 | +41.27 | Discontinued until quantities available are larger. | | | 2,273 | 1,575 | +44.29 |
| May 13 | 264,535 | 213,221 | +24.07 | 3,007 | 2,155 | +39.52 | | | | 2,296 | 1,687 | +36.08 |
| May 20 | 245,687 | 190,548 | +28.94 | 3,018 | 2,374 | +27.10 | | | | 2,375 | 1,832 | +29.60 |
| May 27 | 219,647 | 174,798 | +25.66 | 3,206 | 2,623 | +22.24 | | | | 2,492 | 1,932 | +28.98 |

### Receipts of Eggs (Cases) at 4 Markets*

| Geographic sections | April 1939 | April 1938 | April % change | Jan. to Apr., Inc. 1939 | Jan. to Apr., Inc. 1938 | Jan. to Apr., Inc. % change |
|---|---|---|---|---|---|---|
| New England | 35,460 | 30,129 | + 17.69 | 151,195 | 117,948 | + 28.19 |
| Middle Atlantic | 202,293 | 184,579 | + 9.60 | 759,090 | 665,232 | + 14.11 |
| South Atlantic | 39,919 | 39,926 | – 0.02 | 133,290 | 126,395 | + 5.45 |
| East North Central | 438,392 | 441,299 | – 0.66 | 1,174,746 | 101,639 | + 6.64 |
| West North Central | 1,212,692 | 1,089,557 | + 11.30 | 2,976,595 | 2,657,540 | + 12.01 |
| South Central | 12,549 | 15,812 | – 20.64 | 44,751 | 69,643 | – 35.74 |
| Mountain | 20,631 | 38,684 | – 46.67 | 94,444 | 205,226 | – 53.98 |
| Pacific | 20,630 | 51,381 | – 59.85 | 93,567 | 257,298 | – 63.64 |
| Miscellaneous | 677 | 822 | – 17.64 | 2,095 | 2,332 | – 10.16 |
| TOTAL | 1,983,243 | 1,892,189 | + 4.81 | 5,429,773 | 5,203,253 | + 4.35 |

### Receipts of Dressed Poultry (Pounds) at 4 Markets*

| | | | | | | |
|---|---|---|---|---|---|---|
| New England | 939,101 | 924,864 | + 1.54 | 2,068,809 | 2,230,021 | – 7.23 |
| Middle Atlantic | 2,903,410 | 3,300,586 | – 12.03 | 5,345,805 | 4,880,798 | + 9.53 |
| South Atlantic | 1,713,602 | 798,570 | +114.58 | 5,077,258 | 2,466,118 | +105.88 |
| East North Central | 2,459,547 | 2,014,645 | + 22.08 | 12,178,335 | 7,011,063 | + 73.70 |
| West North Central | 5,578,767 | 3,884,717 | + 43.61 | 34,306,970 | 24,057,140 | + 42.61 |
| South Central | 1,547,830 | 1,755,320 | – 11.82 | 7,673,626 | 8,922,146 | – 13.99 |
| Mountain | 140,004 | 51,469 | +172.02 | 1,566,410 | 1,213,882 | + 29.04 |
| Pacific | 311,759 | 548,478 | – 43.16 | 2,190,290 | 4,169,183 | – 47.47 |
| Miscellaneous | — | — | — | — | — | — |
| TOTAL | 15,594,020 | 13,278,649 | + 17.44 | 70,407,503 | 54,950,351 | + 28.13 |

* New York, Chicago, Philadelphia, and Boston.

Receipts of eggs at the four markets (New York, Chicago, Philadelphia and Boston) in April were 4.8 per cent heavier than in April 1938. During the first 4 weeks of May, the increase has been more than 20 per cent over a year earlier. At country packing plants in the Central Western States, receipts have shown seasonal decreases each week during May, but as compared with last year during the same period, continued heavy increases have been registered. For the period, May 1 to 20, increases over a year earlier at these plants have been around 25 per cent. In the Pacific Coast area, however, weekly receipts in California, Oregon and Washington continue to lag considerably below those of last year.

Live poultry markets weakened during May and prices at the close of the month show a reduction under April closing prices of 2 to 3 cents. Receipts of live poultry at New York continue to run lighter than in 1938, but at Central Western packing plants, they were 30 to 40 per cent heavier during the first 3 weeks of May than during the corresponding period last year. Seasonal increases have occurred each succeeding week since the middle of April, although these increases have lessened considerably since the first week of the month.

Dressed poultry receipts at the four markets, which were 17 per cent heavier in April than a year earlier, will show an increase of about 25 per cent in May. All of these markets share in an increase, except Philadelphia, where this year's arrivals are lighter. Despite the heavier arrivals at the above terminal markets, a fairly active out-of-storage movement has continued. In these particular markets, the reduction is not equal to last year's reduction during the corresponding period, but in the 35 cities it exceeds last year. Reports for the latter indicate that the relationship of total U. S. stocks is probably about what it was on May 1, namely, an increase this year of about 10 million pounds. On that basis, the June 1 report of total U. S. stocks would show approximately 62 million pounds.

—Comment from Monthly Egg and Poultry Markets Review.

## Egg-Feed Ratios

**New York Egg-Feed Ratio**

| Week Ending | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration | | | Avg. Egg Price per Doz. (Dollars) | | | Avg. Feed Cost per 100 lbs. (Dollars) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1939 | 1938 | 1937 | 1939 | 1938 | 1937 | 1939 | 1938 | 1937 |
| May 4 | 9.3 | 8.0 | 11.9 | .19 | .22 | .227 | 1.77 | 1.78 | 2.72 |
| May 11 | 9.3 | 8.0 | 11.7 | .19 | .22 | .227 | 1.77 | 1.77 | 2.65 |
| May 18 | 9.6 | 7.6 | 11.9 | .182 | .227 | .227 | 1.75 | 1.74 | 2.70 |
| May 25 | 9.5 | 7.3 | 11.9 | .184 | .236 | .227 | 1.75 | 1.74 | 2.70 |

**Chicago Egg-Feed Ratio**

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration | | | Price of Fresh Graded Firsts (Dollars) | | Cost of Ration per 100 lbs. (Dollars) | |
|---|---|---|---|---|---|---|---|
| | 1939 | 1938 | 10-Yr. Av. 1929-38 | 1939 | 1938 | 1939 | 1938 |
| May 6 | 6.84 | 5.73 | 6.62 | .160 | .195 | 1.095 | 1.118 |
| May 13 | 6.99 | 5.78 | 6.56 | .158 | .196 | 1.107 | 1.133 |
| May 20 | 7.14 | 5.61 | 6.65 | .153 | .200 | 1.095 | 1.122 |
| May 27 | 7.21 | 5.41 | 6.79 | .152 | .198 | 1.100 | 1.073 |

## Eggs in Storage

Movements of eggs into storage have been fairly active this month. Total U. S. stocks in storage as of May 1 were reported at 3,347,000 cases, an increase of approximately 150,000 cases over May 1, 1938. Since then, stocks in 35 cities, which carry close to three-fourths of the total U. S. stocks have increased at a greater rate than occurred last year; and in these cities alone, stocks on May 20 were almost 250,000 cases greater than a year earlier. A continuation of the above rate of delivery throughout the entire month of May would result in June 1 holdings of around a million cases greater than the 5 million cases on hand on the same date last year. With such an increase, however, the June 1 total would still be below the 1934-38 average of 6,458,000 cases.

**Storage Holdings of Eggs**

| Kind | May 1 5-Year Avg 1934-38 | May 1 1938 | April 1 1939 | May 1 1939 | % Change May '38-May '39 |
|---|---|---|---|---|---|
| | | (Thousands) | | | |
| Shell Eggs (cases) | 3,838 | 3,204 | 1,105 | 3,347 | + 4.4 |
| Frozen Eggs (lbs.) | 79,035 | 115,874 | 60,465 | 88,778 | −23.3 |
| Frozen Case Equivalent (cases)* | 2,258 | 3,311 | 1,728 | 2,537 | −23.3 |
| Total (cases) | 6,096 | 6,515 | 2,833 | 5,884 | − 9.6 |

* Frozen eggs are converted on the basis of 35 lbs. to the case.

Frozen eggs in storage have also increased materially this month, increases in the 35 cities being twice those of the corresponding period of last year. It should be noted, however, that this year's storage reserves of frozen eggs are still considerably below those of a year ago. May 1 stocks (all storages) of 88¾ million pounds were about 25 per cent under a year earlier. The 35 cities stocks on May 20 were 15 per cent lighter. Egg breaking plants reporting April production, showed an increase of 24 per cent over April 1938, the total quantity this year being 36¼ million pounds, the equivalent of 1,035,000 cases.

—Comment from Monthly Egg and Poultry Markets Review.

## Poultry in Storage

**Storage Holdings of Frozen Poultry**

| Kind | May 1 5-Year Avg. 1934-38 | May 1 1938 | April 1 1939 | May 1 1939 | % Change May 38-May '39 |
|---|---|---|---|---|---|
| | | (Thousand Pounds) | | | |
| Broilers | 6,719 | 4,651 | 7,414 | 5,767 | +23.9 |
| Fryers | 5,876 | 5,286 | 9,232 | 6,587 | +24.6 |
| Roasters | 14,948 | 11,962 | 20,908 | 15,522 | +29.7 |
| Fowls | 8,054 | 11,300 | 13,970 | 10,901 | − 3.5 |
| Turkeys | 16,540 | 14,743 | 22,368 | 17,835 | +20.9 |
| Ducks | 983 | 1,458 | 1,455 | 1,090 | −25.2 |
| Miscellaneous | 9,938 | 10,653 | 15,640 | 12,878 | +20.8 |
| Total | 63,058 | 60,053 | 90,987 | 70,580 | +17.5 |

## Hatchery Operations

The April report of commercial hatchery operations indicated that this outlet was still absorbing eggs at about the same rate of increase over last year as during the preceding 2 months. Compared with 1938, these increases have been 18 to 19 per cent. The Middle Atlantic States show the smallest percentage increases, and the Pacific Coast and Mountain States the largest. The April increases in the two latter areas were 79 and 34 per cent, respect-

**Eggs Set, Chicks Hatched, and Chicks Booked by Commercial Hatcheries**

| Geographic Section | No. of plants | Eggs Set During April 1939 | Eggs Set During April 1938 | Eggs Set During April % chg. | Salable Chicks Hatched During April 1939 | Salable Chicks Hatched During April 1938 | Salable Chicks Hatched During April % chg. | Chicks Booked May 1 for May or Later Delivery No. of plants | Chicks Booked 1939 | Chicks Booked 1938 | Chicks Booked % chg. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Thousands | | | Thousands | | | | Thousands | | |
| N. Eng. | 21 | 1,907 | 1,501 | +27 | 1,697 | 1,410 | +20 | 17 | 1,072 | 994 | + 8 |
| Mid. Atl. | 45 | 3,556 | 3,327 | + 7 | 2,573 | 2,391 | + 8 | 37 | 1,179 | 824 | +43 |
| S. Atl. | 34 | 1,906 | 1,682 | +13 | 1,710 | 1,413 | +21 | 26 | 618 | 447 | +38 |
| E. N. Cent. | 121 | 9,479 | 8,208 | +15 | 6,657 | 5,958 | +12 | 96 | 1,622 | 1,549 | + 5 |
| W. N. Cent. | 117 | 13,694 | 11,801 | +16 | 9,994 | 8,691 | +15 | 91 | 3,137 | 2,903 | + 8 |
| S. Cent. | 43 | 2,388 | 2,243 | + 6 | 1,984 | 1,735 | +14 | 25 | 221 | 198 | +12 |
| Mountain | 16 | 1,398 | 1,045 | +34 | 957 | 759 | +26 | 13 | 500 | 269 | +86 |
| Pacific | 64 | 4,460 | 2,455 | +84 | 4,356 | 3,006 | +45 | 47 | 1,575 | 881 | +79 |
| U. S. | 461 | 38,788 | 32,262 | +20 | 29,928 | 25,363 | +18 | 352 | 9,924 | 8,065 | +23 |
| Jan.-Apr. Inc. | | 123,855 | 103,318 | +20 | 71,769 | 58,496 | +23 | | 69,020 | 55,545 | +24 |

ively, but this change is due largely to last year's relatively light hatchings. As usual, the Central States show the largest volume.

## Egg Breaking Operations

**Egg Breaking Operations During April, 1939**

| Commodity | Quantities reported to date for Apr. 1939 | Same firm comparison Apr. 1939 | Apr. 1938 | % change in 1939 |
|---|---|---|---|---|
| | Pounds | Pounds | | |
| Whole eggs (nothing added) | 8,163,317 | 7,743,317 | 6,532,471 | +19 |
| Mixed eggs (plain) | 827,183 | 827,183 | 626,557 | +32 |
| Mixed eggs (emulsions, also with sugar, salt, etc.) | 3,783,620 | 3,783,620 | 2,901,984 | +30 |
| Egg whites (all descriptions) | 12,521,329 | 12,091,329 | 9,696,274 | +25 |
| Egg yolks packed: Without salt, sugar, etc. | 4,167,003 | 4,167,003 | 2,992,910 | +39 |
| Egg yolks packed: With sugar | 4,592,099 | 4,112,099 | 3,198,741 | +29 |
| Egg yolks packed: With salt | 2,190,806 | 2,190,806 | 2,275,048 | – 4 |
| Egg yolks packed: All yolk emulsions, including glycerine | | | | |
| Total—pounds | 36,245,357 | 34,915,357 | 28,223,985 | +24 |
| Total—case egg equivalent | 1,035,582 | 997,582 | 806,400 | |
| Number of firms reporting | 64 | 63 | 63 | |

## Poultry Canning Operations

**Poultry Canning Operations During April, 1939**

| Commodity | Quantities reported to date for Apr. 1939 | Quantities reported for Mar. 1939 | Same firm comparison Apr. 1939 | Apr. 1938 | % change in 1939 |
|---|---|---|---|---|---|
| | Pounds | Pounds | Pounds | | |
| Dressed poultry canned or used in canning | 2,752,972 | 3,534,259 | 2,752,972 | 2,472,419 | +11 |
| Number of firms reporting | 22 | 21 | 22 | 22 | |

## Egg and Poultry Exports and Imports

**Exports of Eggs and Poultry**

| Commodity | | April 1939 | April 1938 | Jan. to Apr., Inc. 1939 | Jan. to Apr., Inc. 1938 |
|---|---|---|---|---|---|
| Eggs in shell | (doz.) | 185,676 | 220,687 | 916,210 | 825,665 |
| Eggs and yolks, frozen, dried, or canned | (lbs.) | Not available | Not available | Not available | Not available |
| Live Poultry | (lbs.) | 41,104 | 9,228 | 71,964 | 29,853 |
| Dressed Poultry | (lbs.) | 184,506 | 178,726 | 627,293 | 499,116 |

**Imports of Eggs and Poultry**

| Commodity | | April 1939 | April 1938 | Jan. to Apr., Inc. 1939 | Jan. to Apr., Inc. 1938 |
|---|---|---|---|---|---|
| Eggs in shell | (doz.) | 20,232 | 21,725 | 123,214 | 73,735 |
| Whole Eggs, dried | (lbs.) | 5,000 | 6,700 | 27,000 | 112,850 |
| Whole eggs, frozen | (lbs.) | 0 | 167 | 420 | 207 |
| Yolks, dried | (lbs.) | 6,200 | 455 | 43,525 | 171,305 |
| Yolks, frozen | (lbs.) | 0 | 45,960 | 11,230 | 287,050 |
| Egg albumen, dried | (lbs.) | 61,000 | 25,000 | 250,183 | 270,974 |
| Egg albumen, frozen | (lbs.) | 0 | 0 | 0 | 30 |
| Live Poultry | (lbs.) | 44,638 | 131,661 | 229,862 | 647,881 |
| Dressed Poultry | (lbs.) | 9,214 | 54,316 | 91,922 | 188,073 |
| Poultry, Prepared | (lbs.) | 43,408 | 35,551 | 354,217 | 291,630 |

## *Two Sets of Pullets per Laying Hen per Year*

When we house our January-hatched pullets (they are Rocks, Reds, and Red-Rock crosses), which will be early in June, we shall do so with the idea of trying to get 100 eggs from each bird and having her ready to sell on the holiday market.

To refill the laying houses then, we hope to have replacements which we will start the latter part of August. This plan of running two sets of pullets of the heavy breeds through a laying pen each year may not work out on a large scale, but on the basis of the little experimenting we have done to date and the records we have kept, it looks as though the scheme had possibilities and that it might be one of the best ways of keeping mortality down to the absolute minimum, getting 200 eggs for the rated hen capacity of our laying houses each year, occasionally making a good thing selling birds for meat purposes and always keeping our bird inventory young.

—H. E. Babcock, American Agriculturist, May 27, 1939.

¶ AS A general rule, 75 per cent of the average pullet flock will not go more than 75 feet away from their colony house 75 per cent of the time. This simple observation may be made into a rule for the spacing and location of range shelters. It is a mistake to put them too close together. Spread them out and let each flock have its own green covered, sanitary area over which to range.

—Poultry Extension Release, New Jersey College of Agriculture.

# RESULTS OF LAYING TESTS

Going into the eighth month of the 1938-39 laying test year, Kauder's Pedigreed Leghorns at Storrs hold a 44-point lead over their next nearest opponents, Thomas Mettler's Rhode Island Reds at Hunterdon, N. J. Ford's Riverbank Farm's Reds at Maine continue in third place among all pens to May 1, despite the fact that they slipped a little further behind the two top pens during the month. Nelson's Leghorns at Texas remain in fourth position, and Guy A. Leader's Leghorns at Pennsylvania climbed into fifth place. Fourteen of the top 20 pens are Leghorns.

Highest pen for April was Kauder's Leghorns at Storrs, with an average per bird of 26.5 eggs and 29.0 points during the 30 days. Seven different tests had one or more birds each laying 30 eggs and earning 33.0 points during April.

John A. Clear moved up a step in the White Leghorn division, now occupying fourth position among all pens in this breed to the first of May. Texas has nine of the 20 highest Leghorn pens. Other southern and western tests account for seven more.

An outstanding feature in the Rhode Island Red section is that J. J. Warren has five pens in the top 20 of this breed for the second consecutive month.

A. J. Williams still has a tight hold on number one position in New Hampshires, but Hubbard Farms' pen at Storrs gained some 20 points during April and is working into a challenging position.

Dryden has a strong grip on the top places in Barred Rocks, and at the rate his Pennsylvania pen is traveling, it may soon shove his Central New York pen out of first place.

Oscar W. Holtzapple's White Rocks are still out in front of all other pens in their breed, but Homestead Farms' birds at Pennsylvania are closing in. Riley Poultry Farm's Oklahoma entry is also pushing ahead.

## Twenty Highest Pens, All Breeds, to May 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 2253 | 2419.45 | Storrs |
| Thomas Mettler | Rhode Island Red | 2345 | 2375.85 | Hunterdon, N. J. |
| Ford's Riverbank Farm | Rhode Island Red | 2285 | 2281.05 | Maine |
| Nelson's Leghorn Breeding Farm | White Leg. | 2127 | 2260.00 | Texas |
| Guy A. Leader | White Leghorn | 2189 | 2251.80 | Pennsylvania |
| John A. Clear | White Leghorn | 2110 | 2242.65 | Hunterdon, N. J. |
| Vans R. Otey | Rhode Island Red | 2143 | 2226.75 | Florida |
| Sand Springs Home Farm | White Leghorn | 2101 | 2212.80 | Texas |
| A. J. Williams | New Hampshire | 2163 | 2211.95 | Florida |
| R. W. Anderson | Rhode Island Red | 2065 | 2206.70 | Storrs |
| Foreman Poultry Farm | White Leghorn | 2092 | 2196.65 | Texas |
| Erath Egg Farm | White Leghorn | 2115 | 2193.90 | Texas |
| Woodlawn Farm | White Leghorn | 2047 | 2193.50 | Texas |
| D. I. Goodenough | Rhode Island Red | 2054 | 2180.70 | Storrs |
| Woodlawn Farm | White Leghorn | 2079 | 2172.25 | Texas |
| Guy A. Leader | White Leghorn | 2093 | 2170.70 | Storrs |
| Booth Farms and Hatchery | White Leghorn | 2090 | 2170.55 | Florida |
| Kauder's Pedigreed Leghorns | White Leghorn | 2072 | 2170.20 | Georgia |
| Booth Farms and Hatchery | White Leghorn | 2026 | 2167.05 | Oklahoma |
| Dublin Poultry Farm | White Leghorn | 2122 | 2161.80 | Georgia |

## High Pen in Each Standard Test for April

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 345 | 377.60 | Storrs |
| Dryden Poultry Breeding Farm | White Leghorn | 349 | 372.45 | Michigan |
| W. C. Mullins | Rhode Island Red | 343 | 371.40 | Texas |
| Nedlar Farm | New Hampshire | 339 | 363.95 | Western New York |
| Thomas Mettler | Rhode Island Red | 344 | 359.05 | Hunterdon, N. J. |
| R. O. Wagemaker | Rhode Island Red | 329 | 359.00 | Missouri |
| Rich Poultry Farm | White Leghorn | 337 | 356.10 | Central New York |
| Dryden Poultry Breeding Farm | Barred Rock | 338 | 354.55 | Pennsylvania |
| Booth Farms and Hatchery | Rhode Island Red | 311 | 335.15 | Oklahoma |
| Lone Oak Leghorn Farm | White Leghorn | 319 | 333.20 | Florida |
| Gold Spot Hatchery | White Leghorn | 319 | 330.25 | Arizona |
| G. E. Coleman, Jr. | Rhode Island Red | 309 | 329.45 | New York State |
| Stroehlein Brothers | White Leghorn | 299 | 324.15 | Passaic, N. J. |
| Ford's Riverbank Farm | Rhode Island Red | 304 | 316.85 | Maine |
| Quimby School | White Rock | 299 | 316.35 | Rhode Island |
| J. A. Hanson | White Leghorn | 292 | 314.40 | Georgia |

## High Pen in Each Breed to May 1—(212 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 2253 | 2419.45 | Storrs |
| Thomas Mettler | Rhode Island Red | 2345 | 2373.85 | Hunterdon, N. J. |
| A. J. Williams | New Hampshire | 2163 | 2211.95 | Florida |
| Dryden Poultry Breeding Farm | Barred Rock | 2038 | 2062.50 | Central New York |
| Lonnie Van Sant | Black Australorp | 1911 | 2008.70 | Arizona |
| Oscar W. Holtzapple | White Rock | 1891 | 1918.90 | Georgia |
| Colonial Poultry Farm | White Wyandotte | 1778 | 1859.30 | Texas |
| Ben G. Monroe | Ancona | 1699 | 1745.85 | Texas |
| Colonial Poultry Farm | White Minorca | 1463 | 1523.80 | Georgia |
| S. E. Raymond | Lamona | 1373 | 1461.80 | Storrs |
| Harry L. Phillips | Columbian Rock | 1404 | 1457.60 | Missouri |
| Lindstrom Poultry Farm | Buff Minorca | 1420 | 1431.75 | Missouri |
| Donald C. Chandler | Silver Laced Wyandotte | 1434 | 1405.35 | Maine |
| Raymond Murphy | White Giant | 1315 | 1405.00 | Missouri |
| Wm. W. Lehman .. | Buff Leghorn | 1229 | 1232.90 | Pennsylvania |
| Laclede Hatchery | Buff Orpington | 1219 | 1182.95 | Florida |
| Blue Ribbon Farm | Rhode Island White | 1085 | 1106.80 | Texas |
| Cedarlaid Poultry Farm | Brown Leghorn | 1265 | 1100.40 | Florida |
| Hall Brothers Hatchery | Cross | 990 | 1024.70 | New York State |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 972 | 1017.50 | Maine |

## High Pen in Each Standard Test to May 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 2253 | 2419.45 | Storrs |
| Thomas Mettler | Rhode Island Red | 2345 | 2375.85 | Hunterdon, N. J. |
| Ford's Riverbank Farm | Rhode Island Red | 2285 | 2281.05 | Maine |
| Nelson's Leghorn Breeding Farm | White Leg. | 2127 | 2260.00 | Texas |
| Guy A. Leader | White Leghorn | 2189 | 2251.80 | Pennsylvania |
| Vans R. Otey | Rhode Island Red | 2143 | 2226.75 | Florida |
| Kauder's Pedigreed Leghorns | White Leghorn | 2072 | 2170.20 | Georgia |
| Booth Farms and Hatchery | White Leghorn | 2026 | 2167.05 | Oklahoma |
| J. J. Warren | Rhode Island Red | 2022 | 2159.75 | Rhode Island |
| Ford's Riverbank Farm | Rhode Island Red | 2105 | 2150.05 | Michigan |
| J. J. Warren | Rhode Island Red | 2037 | 2116.05 | Passaic, N. J. |
| Content Farms | White Leghorn | 2026 | 2083.35 | Central New York |
| R. O. Wagemaker | Rhode Island Red | 1922 | 2064.00 | Missouri |
| Lonnie Van Sant | Black Australorp | 1911 | 2008.70 | Arizona |
| J. J. Warren | Rhode Island Red | 1900 | 1963.55 | New York State |
| J. J. Warren | Rhode Island Red | 1794 | 1901.85 | Western New York |

## High Hen in Each Standard Test for April

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 30 | 33.00 | Storrs |
| W. S. Hannah and Son | White Leghorn | 30 | 33.00 | Texas |
| Schwegler's Hatchery | New Hampshire | 30 | 33.00 | Western New York |
| Thomas Mettler | Rhode Island Red | 30 | 33.00 | Passaic, N. J. |
| Thomas Mettler | Rhode Island Red | 30 | 33.00 | Hunterdon, N. J. |
| Booth Poultry Farm | White Leghorn | 30 | 33.00 | Missouri |
| Kerr Chickeries | White Leghorn | 30 | 33.00 | Maine |
| Becker's Ravenswood Leg. Farm | White Leg. | 30 | 32.95 | Florida |
| David Cohen | Barred Rock | 30 | 32.90 | Central New York |
| Ford's Riverbank Farm | Rhode Island Red | 30 | 32.90 | Michigan |
| Colonial Poultry Farm | Barred Rock | 30 | 32.90 | Georgia |
| A. M. Wolgemuth | White Leghorn | 30 | 32.80 | Pennsylvania |
| Del Rio Farm | New Hampshire | 30 | 32.70 | Arizona |
| Hillview Poultry Farm | White Leghorn | 30 | 32.60 | New York State |
| Hillview Poultry Farm | White Leghorn | 30 | 32.00 | Rhode Island |
| Northland Farm | White Leghorn | 29 | 31.90 | Oklahoma |

## High Hen in Each Breed to May 1—(212 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| A. E. Guinn | White Leghorn | 204 | 222.60 | Georgia |
| Dryden Poultry Breeding Farm | Barred Rock | 199 | 214.50 | Missouri |
| Weber Duck Farm | Rhode Island Red | 195 | 213.75 | Michigan |
| S. C. Houck | New Hampshire | 194 | 206.85 | Pennsylvania |
| Lindstrom Poultry Farm | White Wyandotte | 179 | 195.30 | Georgia |
| Raymond Murphy | White Giant | 172 | 186.20 | Missouri |
| Holtzapple Poultry Farm | White Rock | 173 | 185.90 | Michigan |
| Lonnie Van Sant | Black Australorp | 174 | 183.75 | Arizona |
| Colonial Poultry Farm | White Minorca | 157 | 166.20 | Georgia |
| S. E. Raymond | Lamona | 151 | 165.45 | Storrs |
| Missouri Valley Poultry Farm | Ancona | 150 | 162.05 | Oklahoma |
| Henry F. Waitt | Silver Laced Wyandotte | 160 | 161.20 | Maine |
| Blue Ribbon Farm | Rhode Island White | 145 | 157.45 | Texas |
| Harry L. Phillips | Columbian Rock | 154 | 148.85 | Missouri |
| Laclede Hatchery | Buff Orpington | 147 | 144.30 | Florida |
| Lindstrom Poultry Farm | Buff Minorca | 150 | 143.40 | Rhode Island |
| Hall Brothers Hatchery | Cross | 129 | 140.15 | New York State |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 130 | 139.40 | Maine |
| Cedarlaid Poultry Farm | Brown Leghorn | 145 | 137.50 | Florida |
| Missouri Valley Hatchery | Buff Leghorn | 142 | 130.40 | Maine |

## High Hen in Each Standard Test to May 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| A. E. Guinn | White Leghorn | 204 | 222.60 | Georgia |
| Kauder's Pedigreed Leghorns | White Leghorn | 198 | 216.40 | Storrs |
| Dryden Poultry Breeding Farm | Barred Rock | 199 | 214.50 | Missouri |
| Weber Duck Farm | Rhode Island Red | 195 | 213.75 | Michigan |
| W. A. Seidel | White Leghorn | 199 | 211.85 | Texas |
| Thomas Mettler | Rhode Island Red | 195 | 211.35 | Hunterdon, N. J. |
| E. B. Parmenter | Rhode Island Red | 194 | 210.80 | Rhode Island |
| Gulfkist Poultry Farm | White Leghorn | 194 | 210.65 | Florida |
| Guy A. Leader | White Leghorn | 194 | 208.00 | Pennsylvania |
| Ford's Riverbank Farm | Rhode Island Red | 197 | 207.90 | Maine |
| George A. Pearce | Rhode Island Red | 190 | 205.55 | Passaic, N. J. |
| Douglaston Manor Farm | Rhode Island Red | 188 | 202.45 | Western New York |
| Booth Farms and Hatchery | White Leghorn | 177 | 193.15 | Oklahoma |
| J. J. Warren | Rhode Island Red | 177 | 193.05 | New York State |
| Nelson's Leghorn Breeding Farm | White Leg. | 185 | 189.80 | Arizona |
| Dayton Poultry Farm | White Leghorn | 192 | 189.50 | Central New York |

## 20 Highest White Leghorn Pens in Country to May 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Kauder's Pedigreed Leghorns | 2253 | 2419.45 | Storrs |
| Nelson's Leghorn Breeding Farm | 2127 | 2260.00 | Texas |
| Guy A. Leader | 2189 | 2251.80 | Pennsylvania |
| John A. Clear | 2110 | 2242.65 | Hunterdon, N. J. |
| Sand Springs Home Farm | 2101 | 2212.80 | Texas |
| Foreman Poultry Farm | 2092 | 2196.65 | Texas |
| Erath Egg Farm | 2115 | 2193.90 | Texas |
| Woodlawn Farm | 2047 | 2193.50 | Texas |
| Woodlawn Farm | 2079 | 2172.25 | Texas |
| Guy A. Leader | 2093 | 2170.70 | Storrs |
| Booth Farms and Hatchery | 2090 | 2170.55 | Florida |
| Kauder's Pedigreed Leghorns | 2072 | 2170.20 | Georgia |
| Booth Farms and Hatchery | 2026 | 2167.05 | Oklahoma |
| Dublin Poultry Farm | 2122 | 2161.80 | Georgia |
| Gulfkist Poultry Farm | 2110 | 2159.05 | Florida |
| Kauder's Pedigreed Leghorns | 2065 | 2141.80 | Georgia |
| Erath Egg Farm | 2047 | 2132.30 | Texas |
| Booth Farms and Hatchery | 2019 | 2128.35 | Florida |
| I. Commer | 2068 | 2122.80 | Texas |
| W. A. Seidel | 1997 | 2121.35 | Texas |

## 20 Highest Rhode Island Red Pens in Country to May 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Thomas Mettler | 2345 | 2375.85 | Hunterdon, N. J. |
| Ford's Riverbank Farm | 2285 | 2281.05 | Maine |
| Vans R. Otey | 2143 | 2226.75 | Florida |
| Ralph W. Anderson | 2065 | 2206.70 | Storrs |
| D. I. Goodenough | 2054 | 2180.70 | Storrs |
| J. J. Warren | 2022 | 2159.75 | Rhode Island |
| Ford's Riverbank Farm | 2105 | 2150.05 | Michigan |
| J. J. Warren | 2044 | 2139.90 | Storrs |
| J. J. Warren | 2023 | 2137.50 | Pennsylvania |
| J. J. Warren | 1981 | 2125.70 | Storrs |
| J. J. Warren | 2037 | 2116.05 | Passaic, N. J. |
| R. E. and F. H. Kendrick | 1978 | 2093.55 | Rhode Island |
| L. D. Bartholomew | 2060 | 2088.45 | Storrs |
| Wene Chick Farms | 2032 | 2088.00 | Storrs |
| Weber Duck Farm | 2084 | 2086.55 | Florida |
| George A. Pearce | 2090 | 2081.60 | Passaic, N. J. |
| Homestead Farm | 1977 | 2080.00 | Storrs |
| Orin A. Bailey | 2014 | 2066.60 | Florida |
| W. C. Mullins | 1932 | 2065.65 | Texas |
| R. O. Wagemaker | 1922 | 2064.00 | Missouri |

## 20 Highest New Hampshire Pens in Country to May 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| A. J. Williams | 2163 | 2211.95 | Florida |
| Hubbard Farms | 2096 | 2146.25 | Storrs |
| Steelman Poultry Farms | 2001 | 2096.70 | Storrs |
| E. N. Larrabee | 1978 | 2079.15 | Storrs |
| Thomas J. Harrold | 2031 | 2030.40 | Georgia |
| A. J. Williams | 1950 | 2027.70 | Florida |
| W. H. Boulware | 1949 | 2016.70 | Florida |
| Del Rio Farm | 1879 | 1986.55 | Arizona |
| Eben Wood | 1913 | 1986.15 | Maine |
| Colonial Poultry Farm | 1929 | 1971.80 | Arizona |
| Fuzzydele Farms | 1822 | 1936.90 | Pennsylvania |
| James H. Horne | 1856 | 1917.55 | Maine |
| Pine Top Poultry Farms | 1767 | 1898.30 | Georgia |
| S. C. Houck | 1828 | 1893.65 | Pennsylvania |
| Quimby School | 1955 | 1876.05 | Maine |
| Fuzzydele Farms | 1806 | 1853.75 | Western New York |
| Stroehlein Brothers | 1804 | 1827.25 | Passaic, N. J. |
| H. Guy Loose | 1706 | 1816.80 | Pennsylvania |
| Eben Wood | 1723 | 1808.75 | Passaic, N. J. |
| Goodwin's Poultry Farm | 1743 | 1798.75 | Storrs |

## 20 Highest Barred Plymouth Rock Pens in Country to May 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Dryden Poultry Breeding Farm | 2038 | 2062.50 | Central New York |
| Dryden Poultry Breeding Farm | 2020 | 2013.40 | Pennsylvania |
| Eben Wood | 1939 | 1938.95 | Maine |
| Dryden Poultry Breeding Farm | 1864 | 1934.25 | Missouri |
| Fuzzydele Farms | 1845 | 1900.35 | Storrs |
| Charles M. Lathrop | 1776 | 1872.25 | Passaic, N. J. |
| Riley Poultry Farm | 1890 | 1862.55 | Michigan |
| David Cohen | 1816 | 1862.40 | Central New York |
| Dryden Poultry Breeding Farm | 1843 | 1858.55 | Storrs |
| Riley Poultry Farm | 1794 | 1825.00 | Georgia |
| Egyptian Hatchery | 1777 | 1791.25 | Missouri |
| R. C. E. Wallace | 1757 | 1790.15 | Central New York |
| Weber Duck Farm | 1765 | 1779.40 | Florida |
| Gulf Coast Hatchery | 1793 | 1777.80 | Florida |
| R. C. E. Wallace | 1702 | 1766.15 | Oklahoma |
| Booth Farms | 1860 | 1752.25 | Florida |
| Weber Duck Farm | 1681 | 1750.55 | Michigan |
| Charles M. Lathrop | 1752 | 1749.75 | Hunterdon, N. J. |
| Weber Duck Farm | 1637 | 1744.20 | Rhode Island |
| Riley Poultry Farm | 1681 | 1743.70 | Oklahoma |

## 20 Highest White Plymouth Rock Pens in Country to May 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Oscar W. Holtzapple | 1891 | 1918.90 | Georgia |
| Homestead Farms | 1881 | 1879.20 | Pennsylvania |
| Riley Poultry Farm | 1870 | 1835.15 | Oklahoma |
| Kalerok Farm | 1722 | 1808.80 | Rhode Island |
| Oscar W. Holtzapple | 1747 | 1767.30 | Pennsylvania |
| Albert C. Lawton | 1671 | 1753.40 | Rhode Island |
| Homestead Farms | 1721 | 1745.65 | Storrs |
| Quimby School | 1670 | 1743.00 | Rhode Island |
| Tender Broiler Hatchery | 1690 | 1695.90 | Oklahoma |
| Earl C. Dunham | 1626 | 1665.60 | Georgia |
| Kalerok Farm | 1588 | 1653.40 | Pennsylvania |
| Booth Farms | 1578 | 1639.50 | Missouri |
| Red Barn Poultry Farm | 1543 | 1595.05 | Storrs |
| Lewis Farms | 1587 | 1591.85 | Rhode Island |
| Clyde Cochran's Hatchery | 1631 | 1585.45 | Oklahoma |
| Kalerok Farm | 1512 | 1584.70 | Storrs |
| E. A. Hirt | 1533 | 1583.20 | Maine |
| E. A. Hirt | 1506 | 1572.75 | Storrs |
| T. S. Townsley | 1505 | 1559.60 | Georgia |
| Faith Farm | 1561 | 1554.90 | New York State |

## Average Production in Each Test to May 1

| Test | No. Birds | Eggs Per Bird | Points Per Bird | Egg Wt. Per Doz. | Per Cent Mortality for Apr. | Per Cent Mortality to May 1 |
|---|---|---|---|---|---|---|
| Texas | 910 | 130.28 | 135.12 | 24.9 | 3.40 | 12.19 |
| Arizona | 260 | 129.53 | 132.06 | 24.4 | 1.53 | 8.46 |
| Pennsylvania | 1,131 | 122.63 | 125.90 | 24.6 | .79 | 8.04 |
| Hunterdon, N. J. | 650 | 122.98 | 125.36 | 24.3 | 2.15 | 13.84 |
| Storrs* | 1,300 | 121.46 | 125.01 | 24.7 | 1.07 | 8.69 |
| Georgia | 1,300 | 124.51 | 123.64 | 23.8 | 2.38 | 14.53 |
| Passaic, N. J. | 1,001 | 120.48 | 121.87 | 24.2 | 3.49 | 10.48 |
| Florida | 1,248 | 120.99 | 120.71 | 23.9 | 2.16 | 11.53 |
| Oklahoma | 650 | 114.83 | 117.26 | 24.5 | 3.38 | 11.84 |
| Rhode Island | 650 | 109.06 | 114.20 | 25.0 | 2.15 | 12.92 |
| Western New York | 884 | 112.46 | 114.05 | 24.3 | 1.35 | 6.22 |
| Michigan | 897 | 111.27 | 113.78 | 24.5 | 2.89 | 13.82 |
| Central New York | 910 | 105.43 | 107.39 | 24.4 | 1.64 | 7.80 |
| Missouri | 780 | 97.17 | 101.53 | 25.0 | 2.56 | 16.66 |
| Maine | 1,027 | 101.00 | 101.09 | 24.0 | 2.72 | 17.81 |
| New York State* | 1,222 | 100.33 | 99.39 | 23.7 | 1.96 | 11.78 |
| All Tests | 14,820 | 115.06 | 116.90 | 24.4 | 2.19 | 11.68 |

* One week behind other tests in opening because of hurricane.

## High Pen, Each Breed, in Illinois Non-Standard Test to May 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Egyptian Hatchery | White Leghorn | 1202 | 1242.35 |
| Egyptian Hatchery | Barred Rock | 1089 | 1085.25 |
| Mrs. Curtis Manshak | White Rock | 992 | 1015.45 |
| Illinois Hatchery | Rhode Island Red | 841 | 913.75 |
| Corn Belt Hatchery | New Hampshire | 843 | 909.85 |
| Macomb Hatchery | Buff Orpington | 701 | 716.10 |
| Belldear Hatchery | White Wyandotte | 694 | 690.00 |
| Wallace Moody | Buff Rock | 510 | 505.50 |
| H. R. Harnes | Brown Leghorn | 530 | 488.80 |

## 5 High Pens, R. O. P. Progeny Test, Paterson, N. J., to May 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Stroehlein Brothers | White Leghorn | 2210 | 2300 |
| Wegatepa Farms | Rhode Island Red | 2272 | 2294 |
| E. B. Parmenter | Rhode Island Red | 2149 | 2243 |
| Oak Knoll Poultry Farm | White Leghorn | 2137 | 2137 |
| R. A. Hopkinson | White Leghorn | 1974 | 2054 |

## High Pen, Each Breed, Vineland, N. J., Hen Test to May 1

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Dembro Poultry Farm | White Leghorn | 1238 | 1353 | Two-Year |
| J. J. Warren | Rhode Island Red | 1032 | 1124 | Two-Year |
| Nedlar Farm | New Hampshire | 992 | 1074 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 754 | 820 | Two-Year |
| J. A. Hanson | White Leghorn | 860 | 935 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 794 | 857 | Four-Year |
| Raymond Gardner | White Rock | 296 | 320 | Four-Year |

## High Pen, Each Breed, Vineland, N. J., Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| J. J. Warren | Rhode Island Red | 4938 | 5345 | Two-Year |
| Sebold Poultry Farm | White Leghorn |  | 4982 | Two-Year |
| Nedlar Farm | New Hampshire | 4624 | 4971 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 3797 | 4013 | Two-Year |
| J. A. Hanson | White Leghorn | 6764 | 7276 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 9458 | 9975 | Four-Year |
| Raymond Gardner | White Rock | 5248 | 5563 | Four-Year |

## High Pen, Each Breed, in Pennsylvania Hen Test to May 1

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| John Schrope | White Leghorn | 1507 | 1639 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 1049 | 1146 | Two-Year |
| E. B. Parmenter | Rhode Island Red | 1012 | 1109 | Two-Year |
| Fuzzydele Farms | New Hampshire | 1006 | 1101 | Two-Year |
| Fuzzydele Farms | Barred Rock | 1042 | 1137 | Mixed-Age |
| A. M. Wolgemuth | White Leghorn | 781 | 851 | Mixed-Age |
| Schwegler's Hatchery | New Hampshire | 542 | 585 | Mixed-Age |

## High Pen, Each Breed, in Pennsylvania Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Lindstrom Poultry Farm | White Leghorn | 5042 | 5322.60 | Two-Year |
| E. B. Parmenter | Rhode Island Red | 4348 | 4594.45 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 4219 | 4472.90 | Two-Year |
| Fuzzydele Farms | New Hampshire | 4080 | 4288.20 | Two-Year |

# Among Our Contributors

**T. S. Townsley** (p. 336), who is in charge of the research program of the Smith Incubator Company at Bucyrus, Ohio, finds time as a sideline to operate three hatcheries with a capacity of 300,000 eggs. Graduating from Purdue University in 1916, he taught poultry for a year at Kansas State College, leaving to become extension poultry specialist in Missouri. After six years of this work, he managed a large poultry farm at Rolla, Missouri, for two years, going to Ohio in November, 1924, to take charge of the Ohio Accredited Hatcheries Association. He was with that organization for two years, went to Buckeye Incubator Company for two years, and then to the Smith Incubator Company in 1928.

In the breeding work conducted in connection with his hatcheries, Mr. Townsley has been successful in developing an outstanding strain of White Rocks, one of his pens winning top honors for the breed in the 1938 laying tests.

**Clifford D. Carpenter,** (p. 355) pathologist with Allied Mills, Inc., has devoted most of his time since graduating from Cornell University in 1920, to poultry disease investigations.

For three years he worked at the University of California Experiment Station, resigning in 1923 to establish the first private laboratory in the United States, devoted exclusively to the control of poultry diseases. He spent several years in research developing a flock treatment for roundworm control.

From 1935 to 1937, he served as director of the poultry division of Lederle Laboratories. During 1938, he was engaged in research work at the University of Kentucky.

**J. H. Florea** (p. 330) has been associate editor of Poultry Tribune since the fall of 1929. Reared on an Ohio farm where poultry was the principal enterprise, he took up poultry at Ohio State University. After his graduation in 1928, he was farm editor of a newspaper at Defiance, Ohio, for a year, prior to joining the Tribune staff.

**N. F. Waters** (p. 338) became senior poultry geneticist at the U. S. Regional Poultry Disease Laboratory, East Lansing, Mich., on January 15 of this year, coming from Iowa State College, where he had been carrying on poultry breeding work since 1931. He was winner of the Poultry Science Research Award in 1932.

Having owned a flock of 2,000 birds from 1919 to 1921 after his return from three years of army service, Dr. Waters tackles experimental problems with the knowledge of the practical poultryman.

Following his graduation from Connecticut State College in 1925, he became a member of the staff at the Rhode Island Experiment Station, leaving there in 1929 to take up graduate work at Harvard University from which he received both his master's and doctor's degrees in 1931. As diversions, he collects stamps, plays golf and goes fishing.

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# Discover Your Own Industry

When the Congress opens, there will be presented for the first time the extent and size of the poultry industry.

It is only by discovery of our industry, its real greatness and its ever-new possibilities of greatness, that we shall reach that proud tomorrow when the mantle of agricultural leadership and the recognition of the rights of our industry will be fixed in the minds of legislators and the public.

There is an old proverb that one picture is worth 10,000 words. Think of the industry picture which will be presented by the Hall of Industry, the Hall of Nations and States, the Hall of Live Poultry, the Scientific Program, the Popular Program, the Youth Program, the Moving Picture Program, and the Consumer Program! All of the segments, functions and activities of the industry blended together into one great industry picture. Where could one discover so easily the true greatness of the poultry industry? Where could the attention of the public be so thoroughly turned to a great branch of agriculture which up to this time has been so much ignored?

The opportunity for "discovering" the poultry industry presented by the Congress will, we believe, bring in one of the greatest eras in the history of the industry. Become an explorer—be responsible for encouraging at least ten people to come to Cleveland to discover their own poultry industry and where they fit into the picture.

—W. D. Termohlen in the Congress Bulletin, June, 1939.

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## Poultry Digest to Carry Popular Talks Given at World's Poultry Congress

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**Many of the talks will be available in manuscript form. Those which are delivered extemporaneously will be covered by a shorthand reporter employed especially for that purpose by the DIGEST. This will insure complete coverage of all talks.**

**In order that the DIGEST might furnish an historical record of the Seventh World's Poultry Congress for future reference, the reporting of the various phases of the Congress will be handled in somewhat greater detail than is possible by the national poultry publications which are more limited in the amount of space which they have available. Tentatively, the August DIGEST will include:**

***A description of each of the foreign exhibits.***
***A description of the Federal and state exhibits.***
***A review of the consumer activities.***
***A report on the youth activities.***

**In an effort to reflect the spirit of the crowds, we shall carry one feature which will consist of interesting and sometimes amusing incidents which are bound to occur at a gathering of this type.**

**While the scientific papers will be published in the official proceedings, the DIGEST plans to review all of those which appear to be of particular interest to its audience. Because of the large number of scientific papers to be presented, the reviews will probably appear over a period of six months or longer.**

**Members of the DIGEST staff will be located at the exhibit of Everybodys Poultry Magazine, Booth 136, during the Congress.**

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NATIONAL
# POULTRY DIGEST

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Vol. 1, No. 7 July, 1939

## Preserving Egg Quality on the Farm

By Leslie M. Black

Poultry Extension Specialist
New Jersey College of Agriculture

*Condensed from New Jersey Farm and Garden*

WITH few exceptions, newly laid eggs represent the acme of quality. An egg of highest quality should be normally shaped, and the shell should be clean and sound.

The air cell, normally at the blunt end of the egg, should be small, not exceeding one-eighth of an inch in depth. It should have a smooth, even outline and should not display any movement when twirled before a candle. The yolk should be well centered and only dimly visible. It should be free from visible germ development and other defects or blemishes.

The albumen must be firm and clear. Firmness of albumen bears a close relationship to the visibility of the egg yolk when eggs are candled. As the egg is twirled before the candle, the yolk moves much more freely, and approaches much closer to the shell, creating a more distinct shadow, if the albumen is thin and watery, than if it is firm.

### Yolk Flattens as Egg Ages

When an egg of fine quality is broken into a dish, the yolk will lie in a relatively rounded form, because the vitelline membrane which encloses the yolk material is relatively strong. As an egg ages, this membrane weakens and permits the yolk to flatten out. The chalazae will be observed as two twisted cords, one on each side of the yolk. Two types of albuminous material, or egg white, are apparent. The thick white adheres closely to the yolk and in eggs of best quality exhibits considerable height.

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(New Jersey Farm and Garden, June, 1939)

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INTENTIONAL 2ND EXPOSURE

The thin white is watery in appearance and of approximately uniform consistency. The albumen of fresh eggs is nearly colorless or bears a slightly greenish tinge. This greenish coloration is due to the presence of Vitamin G, or flavin.

Since eggs are normally sold in dozen or case lots, the very important factor of uniformity should not be overlooked. The ability of a producer to group similar eggs together on the basis of size, shell color, shell texture and interior quality determines in large measure the price that the product will demand and the satisfaction it will render.

### Enemies of Egg Quality

The most serious enemies of egg quality are fertility, washing, heat, dryness, rough handling, and age.

The germ cell in a fertile egg begins to develop when the egg is held at a temperature of 68 degrees or higher. If the temperature does not extend to the incubation point (95-110 degrees) the germ soon dies, and the egg soon rots. According to some authorities, fertility in eggs is responsible for all rotten eggs and for a large proportion of other inferior qualities.

Many dirty eggs are washed to render their outside appearance as pleasing to the eye as that of an egg that has been cleanly produced. The washing process removes the gelatinous outside coating on the shell of the egg, known as the cuticle. This cuticle is the chief protection of the egg against bacterial and mold invasion. Washing renders the contents more susceptible to attack by bacteria or fungi that are present in the dirt on the shell, provides the water in which such organisms become motile, and opens the pores in the shell for their ready entrance.

Experiments have proved that the quality of fresh, fertile eggs held at 44.6 degrees for 65 days will be equal to that of similar eggs subjected to incubation temperatures for only three days. High temperatures are responsible for the rapid deterioration of eggs, the enlargement of air cells, the darkening of yolks, and a generalized weakening of the various parts of the egg, notably the vitelline membrane of the yolk, the density of the albumen, and the shell membranes.

Closely associated with temperature is the degree of humidity in the atmosphere in which eggs are kept. A dry atmospheric condition is responsible for rapid shrinking of the contents of the egg, causing enlarged air cells, and for the appearance of glassy areas in the shell. These conditions are hastened when temperatures advance.

Undue jarring of eggs results in loss of firmness in both yolk and albumen and causes tremulous or broken air cells. Fresh eggs of high quality are more resistant to roughness than are older eggs of poorer quality.

As eggs age, the interior parts tend to weaken. The thick albumen tends to merge with the thin, and all of the albumen becomes watery and less viscous. These characteristic changes occur even when high quality eggs are handled carefully and every requirement for the preservation of quality is provided. Naturally, their occurrence is accelerated when proper provisions for quality preservation are not observed.

### Combating the Enemies of Quality

One or more poor quality eggs can detract seriously from an otherwise perfect pack and can do great harm in reducing the normal consumption of eggs. Serious attention should be given to preserving the quality that hens incorporate in their product.

**Fertility.** Males should never be introduced into laying flocks except for the purpose of producing eggs for hatching. As soon as the hatching season ends, males should be removed.

**Washing.** Eggs should never be washed. Slightly soiled eggs should be dry-cleaned with sandpaper or emery cloth. Every effort should be made to enable the hens to produce clean eggs. Such items as clean and well littered floors, adequate nesting facilities with clean nesting material, wired drop-boards, early removal of broody hens, and the avoidance of overcrowded housing conditions should not be overlooked.

**Heat.** Eggs should be gathered frequently from the nests in clean, ventilated baskets or pails, then removed immediately to a clean, well ventilated cellar or egg-storage room in which a temperature of 40 to 60 degrees is maintained, the lower temperature being preferable. After the body heat has disappeared, eggs should be packed into cool, clean cases or cartons.

**Dryness.** An attempt should be made to maintain the relative humidity in the egg room at 90 degrees or higher. This may be accomplished by sprinkling the floor or walls periodically with cool water, by constructing a humidor of some type, by the use of ice, or by the installation of a commercial humidifier.

**Rough Handling.** Always treat eggs as a perishable product. Avoid undue jarring while collecting and marketing.

**Age.** Deliver carefully packed cases or other containers to your receiver as frequently as possible. Ship twice weekly by a carrier who appreciates your effort to market a high quality product and who will treat it with care equal to that which you have observed.

Finally, be jealous of the product you sell. Establish a reputation for it, and guard that reputation carefully. Encourage in all with whom you come in contact an appreciation for eggs and for the health-giving factors they contain, for the care that they deserve, and for the fact that they are the only naturally sterile food product reaching consumers in its own sanitary protective covering.

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TO GUARANTEE auction purchasers of chicks the exact sex and breed of chicks they buy, every member of the Chick Producers' Association in England has agreed to market all surplus chicks sold through auctions in boxes of 15, 25 or 50 chicks, each box bearing an unbroken seal on which is to be clearly stated the name of the producer or hatchery and the date of hatch. The seal will also guarantee to the purchaser the number of live chicks the box contains, the breed and the sex.

THE WESTINGHOUSE exhibit at the New York World's Fair consists of a huge ring that forms the lower part of a swinging pendulum. In the center of the ring is a giant hour glass containing 28 pounds of colored and crushed egg shells instead of glass or sand. The ring with its hour glass weighs 1,000 pounds and takes a half hour to start from its vertical, motionless position and reach full swing.

# Suggestions for Conducting the Rapid, Whole-Blood Test

By Hubert Bunyea
U. S. Bureau of Animal Industry

*Condensed from a Talk*

SINCE the stained-antigen, rapid, whole-blood test for pullorum disease was originally announced, this method has acquired much favor with the poultry industry on account of its simplicity of operation, the small expense involved, and the negligible effect of the test upon the productivity of the laying hens. It has been officially adopted for the control of pullorum disease under the National Poultry Improvement Plan in 25 of the participating states.

The use of the test has resulted in the development of certain kinds of testing equipment, good or bad, and certain procedures, meritorious or otherwise.

Experience has taught us that the efficient use of the stained-antigen, rapid test lies along certain fairly definite lines.

The general program of testing a flock may be divided into catching and confining the birds, placing them on a holding table, or, after bleeding, in a retaining trap, collecting the blood, legbanding the non-reactors, and segregating and disposing of the reactors.

The birds should be caught on the day for which the test is planned. A roll of 5-foot poultry wire may be uncoiled at one end of the room, the end of the roll of poultry wire being stapled to the corner of the wall. This makes a good corral behind which the birds can be driven for catching. Or poultry wire may be tacked in front of the dropping board, extending to the floor, and a catching coop at one end, and another opening at the other for driving the birds in under the dropping board.

Either of these methods is almost certain, however, to create so much dust that it may seriously interfere with testing indoors. If outdoor testing is practicable, it is eminently preferable. The birds can be caught in coops outside the opening of the house. A person in the house can readily drive them into the coops.

### Handling the Birds

After the bird is caught, it may be held in the tester's hand or the hands of an assistant while being bled. The usual practice, however, is to place enough birds on a table equipped with leg clamps to constitute a row of tests on the plate. The bird is thus restrained for testing and banding, and reactors are identified by their respective positions on the table and on the plate.

### How to Obtain the Blood Sample

The most favorable site for bleeding is the brachial vein of the wing. With a bevel-pointed stilet or a large sharp hypodermic needle, the vein is punctured near the point of the elbow where the vein passes over the bone and is quite superficial. Little or no subcutaneous hemorrhage should result. Bleeding from the tip of the comb or from the wattle is less desirable, as excessive hemorrhage may result, and it is more difficult to measure the blood from these sites than from the wing. A knife is undesirable for obtaining the blood for the plate test, because it may cause a severe wound, and result in excessive hemorrhage. The bleeding instrument **should be disinfected and wiped dry** between birds.

The bird may be retained on the holding table pending a diagnosis, or, in lieu of a holding table, it may, after bleeding, be placed in a trapnest, cage, or box numbered to correspond with its position on the testing plate.

Medicine droppers, slides, paddles, etc., are not desirable for picking up the blood, for the reason that it is impossible to measure blood so obtained. The proper amounts of blood and antigen for the test are .02 cc and .05 cc, respectively. A length of No. 20 Brown and Sharp gauge nicrome wire, looped around a No. 20 steel machine drill, or around a 10-penny wire nail is a satisfactory measure for this amount of blood when filled to bulging capacity. The antigen droppers furnished with commercial antigens are calibrated to deliver the correct amount of antigen.

One drop of antigen at a time is placed on the testing plate. The blood is immediately mixed with the antigen by stirring for 15 to 20 revolutions and spreading out to a diameter of 1 inch. The plate is then rotated from time to time while the tests are progressing. The practice of placing a row of antigen drops on the plate at the start is undesirable since evaporation begins at once, and the consequent loss of moisture throws the last few tests out of standard. Furthermore, the delayed drops form a marginal crust which may cause an appearance of agglutination.

### White Glass Plate Most Satisfactory

Various types of plate are in use,—mirrors—plain glasses, with or without a white paper background—porcelain plates, painted glass, and white glass. The last named is the prevalent type of plate, and seems to be most satisfactory. Plain glass affords no adequate background. Mirrors show a double picture, and throw a glare into the tester's eyes. Testing papers tend to absorb moisture and wrinkle. Testing papers are of little value for filing, because the test cannot always be interpreted after it has dried. It is better to make test records on other forms if desired for filing.

Some commercial testing plates are ruled off in small squares which interfere with spreading the tests to a proper diameter. Unruled testing plates are preferred. The tester soon acquires the habit of spreading the tests over the approximate area of a 25-cent coin, thus bringing to light suspicious cases which might be obscured in a smaller preparation.

### Proper Timing Essential

Much variation exists in the timing of tests. Some operators look back far beyond the specified 2-minute maximum interval, while others hurry through and scarcely allow a minute for a suspicious case to show up. Only true reactions should be held as significant even with the 2-minute interval. Late powdery reactions and minute marginal flocculations are of no consequence. But suspicious reactors are usually removed along with the positive cases.

### Dust and Wind Shield Desirable

The dust factor has been mentioned. Testing out of doors usually escapes

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Cleveland, Ohio, June 6 to 9, 1939

most of the dust stirred up by the birds. The tester should set up his equipment to windward of the catching coop and, if necessary, place a transparent dust and wind shield over his plate. It is a good idea also to prevent the birds from flapping their wings as much as possible.

If the test must be done indoors, the litter should be sprinkled to lay the dust, and the birds should be cooped or released into another room after being tested. The tester may also wipe the testing plate occasionally with a clean cloth, not with the bare hand. In bad weather, testing may be done in a separate building from the poultry house.

In very cold weather it is advisable to warm the testing plate to prevent freezing. The plate should never be hot. A temperature of 60 to 80 degrees Fahrenheit is satisfactory. Excess heat promotes rapid evaporation. Wind and sun heat should be avoided for the same reason. In warm weather the plate should be shaded. If the plate feels warm to the underside of the wrist, it is too warm for the test.

Heating devices in use consist of warm water cans, electric units, chemical heat pads, alcohol lamps, etc.

### Cleaning the Testing Plate

After the testing plate is filled up, it may be washed in cold or tepid water, never hot water. No soap should be used ordinarily, as a film of alkali on the plate may affect subsequent tests. If the plate cannot otherwise be cleansed, however, soap may be employed, provided the testing plate is thoroughly rinsed and polished dry afterwards. Testing plates should not be scraped or scoured with metal instruments or abrasive powders.

At the conclusion of the test, the reactors are taken from the premises for slaughter. It is a good idea to have a spring scale and weigh them in the presence of the owner.

It is also a good idea to make an invariable practice of thoroughly cleansing and disinfecting coops and all the testing equipment as well as the tester's boots, doing this in the presence of the flock owners. They will then be less likely to say later that you brought them an outbreak of chicken pox, laryngotracheitis, or what not, from another poultry flock. Sanitation in the poultry houses and hatchery following the testing of the flocks is an important part of pullorum-disease control.

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## *Sea Crabs as a Poultry Feed*

Robert Royal of East Boothbay, Maine, has produced a product similar to fish meal by grinding sea crabs, then putting them through dryers and crushers. The entire crab is used, giving a processed meat as well as the ground shell content. This new meal is being tried out by several poultrymen and reports on initial tests have been favorable. This new chicken feed is an experiment, and if it proves to be beneficial to poultry, may also help the fishing industry. Up to this time, sea crabs have been considered a nuisance to lobster fishermen. They catch millions of them in their traps and throw them overboard because they are too small to make it worthwhile to pick out the meat.

—American Poultry Journal, June, 1939.

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# Progress of the National Plan

By Paul Zumbro
Senior Poultry Coordinator
U. S. Bureau of Animal Industry

*Condensed from a Talk*

REMARKABLE progress has been made in the work of the National Poultry Improvement Plan during the past year. Breeders and hatcherymen in Maine and Tennessee cooperated in the plan for the first time, making a total of 44 states that are cooperating with one another and with the Federal Government to improve the quality of hatching eggs, baby chicks, and poultry breeding stock.

Our tabulation of participation for the current year shows a total of 2,038 hatcheries with a hatching capacity of nearly 76 million eggs. This represents an increase over last year of 38 per cent in number of hatcheries and 25 per cent in hatching-egg capacity.

More than 42,000 flock owners with approximately 8½ million breeding birds had their flocks qualified during the past year to produce suitable hatching eggs for the cooperating hatcheries. This is an increase of about 48 per cent in the number of flocks and 46 per cent in the number of breeding birds.

### 317 R.O.P. Flocks

Poultry flock owners in two new states, Iowa and South Carolina, are now doing trapnest-pedigree breeding under the U.S.R.O.P. breeding stage of the plan, making a total of 35 States cooperating in this advanced breeding work of the plan. The number of flock owners has increased only from 298 last year to 317 this year, but the number of birds entered in their trapnest flocks has increased from 108,183 last year to 124,937 this year. And the number of qualified U.S.R.O.P. females in their single-male matings has increased from 26,135 last year to 30,081 this year.

This continuous and very satisfactory increase in the number of industry members who are cooperating in the plan is evidence that they recognize the value of a coordinated national program for poultry improvement. It speaks well for the way the plan is being administered in the cooperating states. We are now beginning to see the beneficial results from our efforts to assist the poultry industry to place itself upon a more sound basis with respect to the production and identification of quality breeding stock and hatchery products.

### Increase in Pullorum Testing

A much larger proportion of the breeding birds under the supervision of the plan are now being officially tested for pullorum disease. Only 57 per cent of the birds were tested under official supervision during the first year of the plan. This percentage increased to 65 during the second year, to 66 the third year, and this year 78 per cent of the birds in the plan are being officially tested for pullorum disease. Our goal naturally is to have all National Poultry Im-

Presented at the National Poultry Improvement Plan Conference, Cleveland, Ohio, June 6 to 9, 1939 provement Plan flocks meeting the requirements of one of the U. S. pullorum-control classes, because this will result in less mortality among baby chicks.

The plan has stimulated interest in poultry-improvement work throughout the country. Since the plan was placed into operation, organized pullorum-control programs have been started for the first time in 14 states, record-of-performance work in 12 states, hatchery-improvement programs in 10 states, and flock-improvement work in 8 states.

### Compliance Satisfactory

For the most part compliance with the provisions of the plan has been satisfactory during the past year and there are numerous examples of hatcheries that more than meet the minimum requirements of the plan in order to improve the quality of their products, rather than to be satisfied with meeting minimum requirements.

In one of the large hatchery states in the Middle West, practically every hatcheryman retested his breeding flocks for pullorum disease just before the hatching season this last year, even though it was not required. In several of the states, the cooperating hatcherymen have voluntarily adopted a 5 per cent maximum tolerance of reacting birds for the first test in the U. S. Pullorum-Tested class, rather than the 10 per cent permitted in the plan.

Quite a number of U.S. Approved hatcheries use either U.S.R.O.P. or privately pedigreed males in a part of their flocks, even though they are not permitted to advertise U.S. Certified chicks unless all of their flocks of one breed and variety are mated to U.S.R.O.P. males. They do these things for the purpose of improving the production qualities of their chicks, and operation under the plan enables them to make more rapid and more positive improvement.

In 23 of the 44 states now cooperating in the plan, breeders and hatcherymen are required to test their flocks for pullorum disease under official supervision in order to participate in the breeding stages of the plan. And in 22 states only those that are cooperating in the breeding stages are permitted to qualify for the U. S. Pullorum-control classes. Our observations indicate that it is highly desirable for both phases of the plan to be carried on together, although it does not appear practical to make this a requirement in all states at the present time.

Our leading poultry geneticists and poultry breeders have for many years recognized the advantages of selecting breeding birds on the basis of family records and have urged this method of selection. We are glad to report that poultry breeders cooperating in the U.S.R.O.P. breeding stage are becoming much more interested in selecting their breeding birds on the basis of the egg production and viability records of the daughters and the sisters.

We believe that interest in this method of breeding will be further stimulated through the publication of the records of U.S. Register of Merit birds. This is an exceedingly important breeding stage and it has not yet been given the consideration that it deserves by our Department, the official state agencies, or the R.O.P. breeders. It is hoped that we will all work together to develop more interest and participation in this breeding stage during the coming years.

### Uniformity of Record Forms

We are well pleased with the number of States that have adopted the standard National Poultry Improvement Plan record forms. The record forms developed and approved by the committee on record forms were first made available to official state agencies in December, 1937. During the fiscal year ending June 30, 1938, 43,964 forms were requested and distributed to official state agencies. More than twice as many, or approximately 100,000 forms have already been distributed during this fiscal year. It is interesting to note that all but one of the cooperating states are using some of the record forms, and in some of the states all of the forms are used that apply to their particular program. The most widely used forms are the U.S.R.O.P. Breeding Pen Record and the U.S.R.O.P. Incubation and Chick-Banding Report which are being used in 30 of the 35 states doing U.S.R.O.P. work.

The use of these standard forms in more of the states facilitates the administration of the program and provides more adequate data than were available prior to their use. These forms assist breeders in keeping the necessary records to select their breeding birds on a family basis. Furthermore, it is believed they can be continuously improved since suggestions from all the states are solicited and given consideration in having the forms revised.

An efficient system of record forms will contribute to a better understanding of pedigree records by both breeders and prospective purchasers of pedigreed stock, reduce the work and cost of supervision, enable R.O.P. inspectors and supervisors to be of greater assistance to breeders, and reduce the cost of record forms to cooperators.

If the National Poultry Improvement Plan is to continue to succeed in its purposes, we must never lose sight of two fundamental requirements in a program that establishes standards for poultry improvement and gives recognition to use of official terminology.

**First,** baby chicks from national plan participants must live well and develop into efficient producers of eggs and poultry meat. The industry members participating must comply with at least the minimum requirements of the plan and their breeding stock and hatchery products offered for sale must be as represented.

**Second,** a coordinated and continuous educational program is essential in order to acquaint farmers with the provisions of the plan and the merits of stock produced under its supervision.

### Cooperators Have a Responsibility

Those breeders and hatcherymen who are cooperating in the plan should and do for the most part realize that it is a privilege and to their advantage in the sale of breeding stock and hatchery products to obtain the recognition that goes with the use of the official terminology of the plan. But with this privilege goes the responsibility of complying with the provisions of the plan. It should be possible to recognize breeders and hatcherymen that are operating under the supervision of the plan by the high quality of their products, the neat and sanitary appearance of their farms and hatcheries, the truthfulness of their advertising claims, and the standard of ethics used in dealing with customers.

Unfortunately, not all of the cooperating hatcherymen and breeders can be readily recognized by these characteristics at the present time. Some industry members still appear to want the recognition of cooperating in a poultry-improvement program without assuming the responsibility that goes with such recognition. Some of these cooperators fail to meet the requirements and, consequently, lose the privilege of cooperating.

The State and Federal administrators of the plan have a dual responsibility; (1) that of assisting the cooperating breeders and hatcherymen in improving the operation of their breeding farms and hatcheries and (2) that of bringing about compliance with the provisions of the plan.

In our opinion, hatchery and flock inspectors and R.O.P. inspectors fail at least in part in the performance of their duties if they do not assist hatcherymen, flock owners, and breeders by way of suggesting improved methods. For the most part, these men are well qualified to suggest more efficient methods because of their training and their opportunity to observe the work of the best breeders and hatcherymen in their respective states. It is obvious that these men also should be on the alert to call to the attention of the official state agency any instances where hatcherymen and breeders are failing to comply with the minimum provisions of the plan.

### Publicity Activities on Plan

To initiate and to carry out effective educational programs of poultry improvement are not easy tasks. Progress has been made, but there remains much to be done. The Federal Government has assisted by providing printed publications, posters, exhibits, a motion picture in sound and silent versions, and a film strip. Miscellaneous Publication No. 300 "The National Poultry Improvement Plan," gives the complete provisions of the plan and is the guide for those participating in the plan. Twenty thousand copies of this publication have been requested and distributed during the past two years.

Miscellaneous Publication No. 317 "Improving Poultry Through the National Poultry Improvement Plan," tells about the plan in popular style. Fifty thousand copies of this publication have been requested and distributed during the past year. A new publication, Miscellaneous Publication No. 349, "The Use of the Rapid, Whole-Blood Test for Pullorum Disease," is now in the course of publication. It is hoped that this will prove useful in the training and supervision of pullorum-testing agents and official pullorum testers in the 31 States that have adopted the whole-blood test as an official test.

A series of five special Farm and Home broadcasts on the plan, beginning last September and ending in March of this year, were given over 99 radio stations associated with the National Broadcasting Company. A tabulation of the mail response from four of these broadcasts shows some response from every state in the Union except Nevada and it totaled more than 1,100 inquiries. A form letter of acknowledgment, together with a copy of Miscellaneous Publication No. 317 and the list of participating states, was sent to each person responding to these broadcasts and a copy of the latter was sent to the contact representative in the state so that a list of cooperating breeders and hatcherymen and other information could be sent to the respondent.

In addition to these special broadcasts, six press releases and fourteen radio service farm flashes were prepared and given wide distribution by the press and radio services of the Department.

The educational aids that have been developed by the Department are only as effective as they are used by the States. In a number of states, the extension poultrymen have had meetings in every county in the State for the purpose of explaining the provisions of the plan and its operation within the state. The sound and silent films and film strips have been used at a number of these meetings. These meetings have been well attended and the response has been favorable.

### Emblem Should Be Used

Those cooperating in the plan must assume a part of the responsibility of acquainting farmers and poultrymen with the plan. They can do this through the proper use of the National Poultry Improvement Plan emblem, appropriate designs, and terminology in their advertising material and through the use of official chick-box labels on all retail sales. Also, through their personal contacts with farmers and poultrymen in the community, they have an excellent opportunity to explain the objectives and operation of the plan and to tell of their cooperation.

Practically all of the official state agencies now have suitable official labels supplied without special charges for the use of their cooperators, but in some states a separate charge is made for these labels and this discourages their use. From our observations, we believe that the administration of the plan would do well to develop a schedule of fees for participation in the plan which is sufficiently large to cover the cost of labels, mats, decalcomanias, and other materials that are available.

### Training Schools for Inspectors

The annual training schools for inspectors and flock-selecting and pullorum-testing agents that are now being held in about 30 states afford an excellent opportunity to develop a better understanding of the plan and to emphasize the responsibility of those participating in it.

In those states where all of the work is done by state inspectors, we frequently find that the breeders, hatcherymen, and chick buyers are less familiar with the plan and have less interest than in those states where training schools are held. This situation is being corrected in several states by holding annual meetings of the cooperators and training schools for the state inspectors. We would like to suggest that official state agencies in all states give consideration to holding one or more meetings for cooperators during the year.

The qualifications, training, and supervision of flock-selecting and pullorum-testing agents are highly important factors influencing the quality of National Poultry Improvement Plan products. During this past year 1,406 persons were authorized by official state agencies to do flock-selecting work and 1,008 persons were authorized to do pullorum-testing work.

The requirements for these agents differ considerably among the states, but we believe that all candidates should be required to attend a training school at frequent intervals in order to be well qualified to do the work more effectively and to keep well informed on the plan and its operation. Furthermore, observations should be made of a new candidate's work in the field before a permit is issued for the period.

### Financing the Supervision

A problem in some of the states that should receive careful consideration is that of providing adequate finances to carry on the necessary supervision and inspection work. Some states are fortunate in having special appropriations or allocations of funds to help defray the cost of poultry-improvement work, while in others the entire cost is defrayed through fees paid by participating industry members. While costs to the members of the industry should be on a reasonable basis, several industry members have indicated to us that they prefer to pay a higher fee rather than to have the program inadequately supervised.

The schedule of fees varies considerably among the states, depending on the costs involved and the funds available from other sources. There are several possible sources of income that are being used, including hatchery fees on the basis of egg capacity, flock fees, leg bands, and fees for flock selecting and pullorum testing on the basis of number of birds. It is the responsibility of each official state agency to work out a budget and develop an equitable schedule of fees that will assure adequate financing of the program.

In addition to a budget, a **plan of work** is suggested as an aid to orderly administration. In some of the states participation in the plan has increased at such an unexpected rate during the past year that it has been difficult to provide adequate supervision. In developing plans for next year's operations, official state agencies should determine the prospective increase in participation as accurately as possible in order to be in position to supply adequate inspection and supervision service at the time this work would be of most benefit. A number of official state agencies solve this problem by setting an early deadline date for the acceptance of applications for participation.

Enough progress has been made to demonstrate the merits of a coordinated national program. Now our job is to work together in such a manner as to develop this program most effectively in the interests of the entire poultry industry.

## *Germicidal Action of Whites of Eggs*

There are substances in the whites of eggs which are enemies to bacteria, but rather surprisingly the whites of really fresh eggs have a weaker germicidal action than that of older eggs.

The explanation suggested is that as the egg gets older, it loses carbon dioxide and the white thus become so alkaline that most organisms cannot grow in it.

There is again a substance in the whites of eggs which is also found in human tears, which has the property of "lysing" the organisms that is, destroying them by dissolving them.

—Eggs, London, June 14, 1939.

ANGEL food cake is perhaps a zenith to which any egg may aspire, for can you mention any cake that approaches it for fluffiness, deliciousness and appetite appeal? Certainly not, and if cake is not your dish, and you feel far below the realm of angels, you can always fall back on the "deviled" egg!

—Reese V. Hicks, Rural New Yorker, May 20, 1939.

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# Changes in the National Plan

*News Release from U. S. Department of Agriculture*

*By a vote of the majority of delegates attending the conference in Cleveland, Ohio, June 6 to 9, 1939, the following changes were made in the National Poultry Improvement Plan. For identification of page numbers, paragraphs, etc., refer to Miscellaneous Publication No. 300 and the printed supplement to this publication issued August 1938, either or both of which can be obtained by writing to the Office of Information, U. S. Department of Agriculture, Washington, D. C.*

(1) Page 2, delete General Regulation 4, which read as follows:

> Flocks, eggs, chicks, and hatcheries shall be subject to inspection at least once a year by the properly constituted authority.

(2) Page 4, delete General Regulation 21, which reads as follows:

> The term "tested" or "blood-tested" shall not be used in connection with disease eradication or control except as outlined in this plan.

(3) Page 4, add new General Regulation following present General Regulation 24, as follows:

> Any person, firm, or corporation signing a hatchery agreement to participate in the National Poultry Improvement Plan shall not purchase, receive, offer for sale, or be a dealer in or agent for breeding stock, hatching eggs, or baby chicks, other than those produced under the supervision of the National Poultry Improvement Plan, without special permission from the official State agency.

(The numbering of the General Regulations will be revised because of the above changes.)

(4) Page 5, paragraph 2, delete and substitute the following:

> Before any flock other than one regularly supplying eggs to a U. S. Approved hatchery may be recognized as a U. S. Approved flock, it must be inspected and approved by an official State inspector. Each year at least one-third of the hatchery flocks supplying eggs to the U. S. Approved hatchery shall be inspected and approved by an official State inspector and at least one-third of the flocks selected by each authorized selecting agent must be inspected and approved.
>
> The inspection of a flock by an official State inspector shall consist in the physical examination of a sufficient number of males and females to satisfy him that the flock is worthy of approval.

(5) Page 5, paragraph 7 entitled "U.S. Approved hatcheries," sentence 2, change to read:

> The management shall keep accurate records concerning the name and address of each flock owner, the number of eggs received from each flock owner, the name and address of each purchaser, the number, hatchery grade if any, breed and variety, and date of shipment of all chicks.

(6) Page 6, paragraph 1 entitled "U.S. Verified flocks," insert the following after first sentence:

> For the first two years of U.S.R.O.P. work by any breeder the males for his own flock need not be produced from flock matings of U.S. R.O.P. males and U.S.R.O.P. females, but they must be wing-banded and of equal breeding.

(7) Page 7, insert after first paragraph under U. S. Record of Performance the following:

> The official State agency may approve for the use of the U.S.R.O.P. breeder birds from State colleges of agriculture and State and Federal experiment stations which have met at least the minimum requirements of the U.S.R.O.P. breeding stage of the National Poultry Improvement Plan.

(8) Page 8, paragraph 4, first sentence, change to read:

> To be eligible for U.S.R.O.P. work all females shall be free from standard disqualifications and shall have been raised from U.S.R.O.P. or U. S. Certified flocks or other flocks of breeding satisfactory to the official State agency.

(9) Page 8, paragraph 5, first sentence, change to read:

> All birds trapnested on the premises of a U.S.R.O.P. breeder shall be considered as entered under U.S.R.O.P. supervision with the following four exceptions: etc.

(10) Page 9, paragraph 1, as now provided in paragraph 1 of Supplement, change to read as follows:

> The R.O.P. supervisor, in publishing a summary of the U.S.R.O.P. work under his supervision each year, shall include the following information for each flock in his U. S. Record of Performance report:
>
> 1. Total number of pullets of that particular breed on farm.
> 2. Number of pullets entered in U.S.R.O.P.
> 3. Number meeting the U.S.R.O.P. requirements.
> 4. Percentage (of item 2) meeting the U.S.R.O.P. requirements.
> 5. Number of birds qualifying which lay from 200 to 249 eggs.
> 6. Number of birds qualifying which lay from 250 to 299 eggs.
> 7. Number of birds qualifying which lay 300 or more eggs.
> 8. Average egg production of the qualifying birds.
> 9. Average egg weight of the qualifying birds.
> 10. Average body weight of the qualifying birds.

(11) Page 9, paragraph entitled "U.S. R.O.P. breeder," delete first two sentences and substitute the following:

> U.S.R.O.P. breeder.-A U.S.R.O.P. breeder is one operating a poultry-breeding farm under the official State supervision of the U.S.R.O.P. breeding stage of the National Poultry Improvement Plan. In addition to the U.S.R.O.P. matings all other mated birds supplying hatching eggs to the U.S.R.O.P. breeder or to any hatchery owned or operated by him shall be under official State supervision in one of the breeding stages of the National Poultry Improvement Plan. This provision shall become effective September 1, 1941.

(12) Page 10, paragraph 2, change to read:

> In order to qualify for U.S.R.O.P. the eggs of each pullet must average at least 24 ounces per dozen. For 3 successive days each month, beginning 3 months after the laying of the first egg and continuing through the remainder of the bird's laying year, the breeder shall record the weight of each egg laid. Yearling and older hens entered for U.S.R.O.P. qualification shall have laid 200 or more eggs during the trapnest year, which shall mean 365 days from the date of the first egg laid in a trapnest. The eggs of each yearling or older hen entered for U.S.R.O.P. qualification shall attain an average weight of 25 ounces per dozen. The inspector shall weigh all eggs on each day's official inspection of the U.S.R.O.P. candidates. An average of all egg weights taken by the breeder and the inspector for each female during her first trapnest year beginning 3 months after the laying of the first egg shall be her official average egg weight.

(13) Page 10, paragraph 3, change to rread:

> All females of white-egg breeds laying tinted eggs and all females laying eggs of undesirable shape may be removed from U.S.R.O.P. flocks by an official State inspector at any time.

(14) Page 10, paragraph 5 under "U.S.R.O.P. females," last sentence, delete and substitute the following:

> All birds meeting the above requirements with respect to egg production, egg weight, egg-shell color, egg shape, body weight, and freedom from standard disqualifications shall be considered as having met the requirements for U.S. R.O.P. females. Before such birds may be sold as U.S.R.O.P. females or used in U.S.R.O.P. matings or flock matings of U.S.R.O.P. males and U.S.R.O.P. females they shall be examined and passed by an official State inspector and banded with a U.S.R.O.P. official, sealed, leg band.

(15) Page 11, paragraph 1 entitled "U.S.R.O.P. matings," first sentence, delete:

> with a minimum record of 225 eggs.

(16) Page 12, section entitled "U. S. Register of Merit matings," substitute the word "four" for the word "five" in paragraph B and delete item 5.

(17) Pages 13 and 14, section 6, add the following paragraph to clarify the provisions regarding custom hatching:

> The custom hatching of eggs from non-U.S. Pullorum-Tested flocks is permitted in U.S. Pullorum-Tested hatcheries, provided the incubation and hatching of such eggs are done in a separate room. The custom hatching of eggs from flocks of a pullorum-control class lower than U.S. Pullorum-Passed is not permitted on the premises of a U.S. Pullorum-Passed hatchery. The custom hatching eggs from flocks of a pullorum-control class lower than U.S. Pullorum-Clean is not permitted on the premises of a U.S. Pullorum-Clean hatchery.

(18) Page 13, section 6, second paragraph, delete and substitute the following:

> In separating a room for the use of two or more incubators, in order to comply with this provision, a tight partition is absolutely necessary and must be provided. Outside ventilation and an outside entry for each room are required. Any door or opening between the two rooms must be sealed, as by weather stripping and locking, or by battening the cracks around the door in the room where eggs from non-U.S. Pullorum-Tested flocks are incubating or hatching. All incubators used for hatching U.S. Pullorum-Tested, U.S. Pullorum-Passed, or U.S. Pullorum-Clean chicks must be thoroughly cleaned and disinfected by spraying or fumigation after each hatch by means of an officially recognized method.

### Administrative Interpretation

It is permissible for an official State agency to provide minimum standards higher than those provided in the National Poultry Improvement Plan.

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ACCORDING to Professor J. A. Loeser (writing in "Nature"), a hen does not hatch her eggs as a result of instinct, but because she has a hot spot and wants to cool it.

Shortly before the beginning of hatching-time, the Professor says, the animal's breast shows the so-called hatching spot. Here the feathers fall out and there is a bald spot which feels hot, as if from inflammation (probably caused by hormones).

This evidently causes the bird pain, for it seeks cooling substances, which must necessarily have a curved shape to be effective. After the eggs have been laid, these offer what is required.

The hen turns the eggs so that she may sit on the cool parts, and without meaning to do so she thus causes all parts of the egg to be equally warmed.
—Feathered World, London, England, June 23, 1939.

A BANTAM hen on P. P. Rogers' farm, near Edwardsport, Ind., has adopted five beagle hound pups. Whenever the mother dog leaves, the hen settles down on them as if they were baby chicks.

# My Views on the National Plan

By John E. Kimber

*Condensed from a Paper*

THE major concern of the National Poultry Improvement Plan is with poultry improvement from the standpoint of selective breeding for desirable hereditary characters, and for freedom from undesirable characters. This problem breaks down into two distinct phases: (1) The improvement of farm poultry flocks by multiplication and distribution of only the best present stocks, and (2) the development of new germ plasm that will be definitely superior to the best present stocks.

In order to "authoritatively identify" the best present stocks, which is, of course, prerequisite to their selection for multiplication, the National Poultry Improvement Plan depends on two principal tests:

(1) The hand culling of poultry flocks by official inspectors, the culling being based on standard disqualifications, apparent condition of the bird, body weight, and some other points, and

(2) R.O.P. trials, under which R.O.P. breeders trapnest **such of their birds as they think will do well** (and which are also left after the official inspectors get through with them). The plan specifically provides that "any birds showing a disqualification may be removed from a U.S.R.O.P. flock by an official state inspector at any time." Occasional unannounced official inspection of flocks and records is relied upon to insure honesty in the keeping of trapnest and other records.

Now it is one thing to claim to "authoritatively identify" the best present stocks, but it is quite another thing to do so. To represent to the industry that mass selection as provided for under the National Plan constitutes "authoritative identification" is to deceive the buying public as to what "authoritative identification" consists of.

Geneticists know full well that one cannot identify superior germ plasm from a bird's individual appearance or even her performance. Such things, technically known as phenotypes, constitute only a small beginning in determining the possible value of breeding stock, and sometimes they are quite unreliable and misleading. Much more important than a bird's own appearance and performance are her whole hereditary background, the family from which she comes, and most important of all, what sort of offspring she herself produces. The latter depends possibly as much upon just what combinations are made when the bird is mated, as upon the bird herself.

### Plan Does a Superficial Job

No matter how "official" the National Plan may be, there is nothing in the plan which does more than an extremely superficial job of appraising the birds or products which the plan officially certifies to the poultry industry as being of superior quality. Even the two highest stages of the plan, known as R.O.P. and R.O.M., provide for the trapnesting of **selected** birds and their **selected** offspring.

If one-third of such **selected** offspring of a hen or a male, with a minimum of four or twenty daughters respectively, succeed in qualifying under R.O.P. trials, the parent is given "R.O.M." rating, and a couple of "stars" are also thrown in for good measure when R.O.M. parents are mated together. Appropriate labels of various colors tell buyers that such stock meets the approval of the U.S. Government.

Now no sincere scientist would for one moment consider the measurement of **selected** daughters as a reliable progeny test as the term is understood by geneticists. Many matings carrying high rate and good egg size easily qualify more than one-third of their daughters as far as meeting R.O.P. standards is concerned, yet would be very inferior breeding material, on account of excessive mortality in the family, marked susceptibility to paralysis, or other weakness which, if perpetuated, would undermine any commercial poultryman's profits. We have had numerous families which would qualify more than one-third of the daughters under R.O.P., but which were simply riddled with serious weaknesses.

Not many breeders would consider that to measure only the culls in their various families would constitute a reliable measure of their stock. Yet in the measurement of the true level of soundness or performance transmitted by parents to offspring, it is fully as important, if not more so, to know the weaknesses transmitted by the parents to their **unselected** offspring, as it is to know that some of the offspring make high egg records. This naturally involves more work than merely to trapnest the more promising daughters. The latter course, however, is that provided for by the National Plan. It does not constitute "authoritative identification" or accurate measurement of quality in breeding stock and I cannot personally concede that it is ethical for government officials to say to the industry that it does.

### Development of Better Germ Plasm

What does the National Plan provide for in the matter of developing new and superior germ plasm? The answer to this depends on what steps may be necessary to produce new and better stocks.

It should be realized that livability, hatchability, and performance characters in poultry — whether egg production, egg size and quality, or rate of growth, table quality, and other points affecting the quality or cost of food — are highly complex from a hereditary standpoint. They are not inherited in a simple, clear-cut manner as are some colors or other characters. And there is probably not a strain in the world today, of any breed, that is homozygous or genetically pure for very many, if any, such performance characters, although the general level of many strains is far superior to the national average.

With efforts to achieve purity for certain characters of industrial value, it is almost certain that various other and undesirable characters will also become more homozygous. It is entirely conceivable that birds might be produced that would be homozygous, and, to the advanced breeder, practically priceless for certain highly important characters that would nevertheless carry a number of trivial "disqualifications" that would compel their outright rejection under the National Plan. If inspectors are to be "lenient" under such circumstances, as was assured me by a very high government official in a letter, why pay their salaries?

The Kimber Poultry Breeding Farm

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Presented at the National Poultry Improvement Plan Conference, Cleveland, Ohio, June 6 to 9, 1939 is endeavoring to do the very best breeding work that our present knowledge of heredity in poultry will permit. Since it is not sound to permit the whim of any inspector to prevent complete family measurements, even after a "six months period," or to compel the discarding of birds possessing trivial showroom disqualifications that have nothing whatever to do with livability or performance, we are not willing to submit to such absurd interference with a breeding and research program costing many thousands of dollars, even if, as at present, our products be virtually outlawed for flock improvement purposes by the U. S. Government. How far would Burbank have gotten under such a regime? Or Secretary of Agriculture Wallace with his own corn breeding experiments?

Many of the greatest hens in the history of poultry breeding would have been sent to market under R.O.P. In our own flock, there are comparatively few side-sprigs, for example, only from 1 to 2 per cent. Yet some of the most valuable birds we have ever had from the standpoint of true breed improvement have possessed this so-called "disqualification." And as far as such trivial characters as side-sprigs are concerned, since these are thought to be recessive characters, the only way their complete eradication can be achieved is by systematic back-crossing and other steps which the National Plan does not provide for and which, by breaking samples at the whim of any inspector, it tends to interfere with.

In other words, while condemning standard disqualifications, the plan does not provide for the type of technique necessary to analyze their inheritance and permanently eradicate them, but merely provides for discarding all birds possessing them, which is not the most effective way to really eliminate recessive characters, since many birds which do not themselves exhibit certain recessives are, nevertheless, carriers of them.

### Costs Increased, But Not Values

Since the plan does not provide for or require really first class breeding technique, it cannot legitimately claim credit for the development of superior values. At the same time there is no doubt that the plan involves considerable cost for superficial official inspection. R.O.P. breeders themselves have publicly stated that R.O.P. greatly increases breeding costs. But first-class breeding work is expensive enough without paying for something additional that does not contribute to superior results. And when the plan insists upon obsolete notions of breeding values in its regulations, then either those regulations have to be ignored, which would be demoralizing, or they have to be complied with. If they are complied with, production costs are still further increased by the compulsory rejection of much otherwise valuable germ plasm.

### Fosters a Monopoly

I now wish to point out what I consider to be far more objectionable in the National Plan than its superficial procedure, ill-advised restrictions, and unnecessary costs. In my opinion, the whole R.O.P. system is one of the worst things that has ever happened to the poultry industry. It is essentially a glorified cooperative advertising scheme calculated to give R.O.P. breeders a virtual and unmerited monopoly on the sale of seed stock in this country.

Among other things, it provides that no birds may even be entered in R.O.P. trials unless they in turn came from R.O.P. parents or from flocks "of breeding satisfactory to the official state agency" which is normally dominated by advocates of R.O.P. If an independent breeder's customer finds his birds so promising that he desires to put them under official R.O.P. test, he should be permitted to do so without having to obtain the consent of any inspector or prejudiced state agency. Anything else is discriminatory, unsound, and un-American, and should not be countenanced by U. S. government officials.

I consider it highly unethical and improper for public officials to engage in propaganda on behalf of the National Plan, including such statements to the effect that the plan gives "true facts concerning the quality of stock available in order that poultrymen may buy with confidence and with greater assurance of securing the quality of stock which they desire." (U.S.D.A. Miscellaneous Publication No. 317, p. 8.)

Such statements in official government publications, the poultry press, and over the radio, do much more than deceive commercial poultrymen as to what constitutes "authoritative identification" of the best present stocks. They have the sinister effect of playing into the hands of R.O.P. breeders, tending to give them an unearned monopoly, and tending to reflect discredit on and undermine the professional standing and business reputation and good will of independent breeders who, for any reason whatever, decline to submit to the National Plan, or to assume its burdensome costs.

There may not be direct personal attacks on the best independent breeders. Great independent breeders like Goodale (who has discovered more about the way in which egg production is inherited than any other man), Dryden and England (both Poultry Item Trophy winners), and others have established reputations which can hardly be undermined by anything any government official may say. But the pressure which government employees, state veterinarians, and others are putting on less well established independent breeders to come under the National Plan or be put out of business, savors much more of Europe than America.

It is amusing indeed for the very government which so eloquently professes to be opposed to monopolies, to be spending many thousands of dollars each year to help give an almost strangle-hold monopoly to certain poultry breeders in return, not for their doing first class breeding work, but for coming under this National Poultry Improvement Plan, which has been engineered mostly by R.O.P. breeders themselves for their own special benefit.

### Demoralizing Effects

When certain unsound restrictions are placed on the operations of poultry breeders, such as that a hen must herself weigh a certain amount, or that her eggs must have a given mean egg weight, a definite temptation is placed before the breeder to **fake his records** just enough to keep her in his breeding pens. The occasional visits of inspectors mean very little.

The National Plan is mighty poor insurance against dishonesty, and furthermore, it is not in the least needed if there exists a sincere desire on the part of our government to stop dishonesty. If breeders or hatcheries publish questionable or dishonest claims, and some do, they should be made to realize even without the existence of any so-called National Poultry Improvement Plan, that it is a criminal offense to use the mails to defraud.

Some day, some breeders who have far over-stepped the mark in publishing some truly astonishing claims, which appear definitely to violate known biological and mathematical laws, may find themselves in a very serious predicament. But it will not be because of the existence or non-existence of any National Plan.

### Pullorum Disease Control

Another very unfortunate aspect of the National Plan is seen in its attempt to ride in on pullorum testing. Now I do not favor any compromise with pullorum disease. Nor do I hold any brief against the veterinary profession, but, in fact, employ two full time veterinarian-pathologists to make numerous precision measurements of mortality and breakdown in our various families and lines. But when the pullorum disease rider is tacked onto the National Poultry Improvement Plan and the influence of the highly organized veterinary profession is thrown squarely behind the superficial selective breeding provisions of the National Plan, I think it is time to point out the danger of accepting one for the sake of the other.

The support of the veterinary profession should be given to pullorum control, and the control of many other diseases which are causing the poultry industry such staggering losses, and in the case of most of which diseases the National Plan says nothing and does even less. But the veterinary profession should not sponsor the unsound breeding phases of the National Plan because the plan also provides for pullorum testing.

It is a commendable thing for American poultrymen to wish to improve their flocks. It is not commendable, however, for men who surely must know better, to tell them that this National Poultry Improvement Plan is the best way to do it. The way to real flock improvement is thorough study of genetic principles, including the meaning and importance of the terms "random sample," "progeny test," and "genetic analysis," the adoption of first class breeding technique, and concentration on problems of industrial importance, without jeopardizing the attainment of important results by placing trivial showroom points actually ahead of biological soundness and industrial performance.

On such matters as the accurate measurement of adult family livability, resistance to disease, and true family average performance, the National Poultry Improvement Plan offers not a single constructive recommendation, but it does permit and require the discarding of all germ plasm, no matter how valuable otherwise, for the possession of trivial characters to which the great poultry industry as a whole is almost totally indifferent.

B. M. LANGLEY, of Atlanta, Ga., insisted that it was against gravity and chicken nature for some of his prize hens suddenly to take off and disappear into a second-story window. Patrolman Roy Wall, who investigated the case, found that a fishing line, a hook and bread bait helped to cause the birds' abnormal flight, and arrested Hugh Lackey, 18-year old occupant of the duplex apartment above Langley's home, on a charge of chicken theft.

# POULTRY RESEARCH

## Vitamin A Requirements of Pullet Layers

A daily intake of 0.2 milligram of carotene per bird proved sufficient to promote average egg production, maintain normal health, and promote normal hatchability of eggs in tests with White Leghorn pullets at the Idaho Agricultural Experiment Station, reported in Bul. 229, "High Lights in Agricultural Research in Idaho."

This level of carotene is equal to about 333 U.S.P. units or 238 Sherman Munsell units of vitamin A. Increasing the carotene 2½ times resulted in a slight increase in egg production and a marked increase in the vitamin A content of the egg yolks, but appeared to have no additional benefit upon the hatchability of the eggs or the health of the birds. Dehydrated alfalfa was used as the source of carotene.

## Riboflavin Requirements of Chickens

Studies on the riboflavin requirements of chickens by Charles H. Hunt, A. R. Winter and R. M. Bethke at the Ohio Agricultural Experiment Station (Poultry Science for July, 1939, Vol. 18, No. 4) revealed that the amount of feed consumed per hen day increased as the amount of riboflavin-carrying ingredients in the ration is increased.

The riboflavin content of the egg varied directly with the riboflavin content of the hen's ration. Data compiled by these investigators suggest that the riboflavin requirements for maximum hatchability are somewhat greater than for good egg production. The eggs of highest riboflavin content also showed the highest hatchability and the chicks from such eggs showed the highest livability when fed a ration deficient in riboflavin.

This study indicates that the hen stores some riboflavin which is utilized during periods when riboflavin deficient rations are fed.

## Wheat Bran Promotes Earlier Sexual Maturity

Including 15 and 25 per cent of whole wheat bran in a mash composed of ground whole grains, fishmeal, skimmilk, alfalfa meal, green feeds, minerals and sardine oil brought about more rapid growth and earlier sexual maturity resulting in lower egg weight at the beginning of production, in tests conducted by L. W. Taylor and I. M. Lerner at the University of California. They reported in Poultry Science for July, 1939 (Vol. 18, No. 4), that annual egg production, March egg weight, and the extent and character of diseases observed in connection with the study were not significantly affected by such a change in the ration.

## Effect of Single Grains on Hatchability and Growth

A study to determine the effect of single grains—corn, wheat and oats—in the ration of the breeders on fertility and hatchability of the eggs, and the effect that these rations fed to the breeders might have upon subsequent growth of the chicks hatched from these eggs, was conducted by V. D. Call and H. L. Wilcke at Iowa Agricultural Experiment Station.

They reported in Poultry Science for July, 1939, (Vol. 18, No. 4) that mortality of breeders was high in all lots, but oats seemed to improve livability. Wheat fed as the only grain produced a diarrhea in adult birds and apparently was a contributing factor in high mortality among adults.

Egg production was greatly reduced in the wheat and oats pens. Production in the corn and mixed grains pens was uniform, with corn being about equal to mixed grains for egg production.

Fertility was not affected significantly by the different rations.

Hatchability was best in eggs from birds fed wheat rations, followed by oats, with corn and mixed grains approximately equal. Chicks from eggs produced by hens fed wheat or oats rations had more vigor than those from eggs produced by hens fed the corn ration. From the data collected, Call and Wilcke concluded that it seems questionable if grains fed to breeding stock have much effect on the subsequent growth of chicks.

## Soybean Oil Meal in Turkey Ration

When soybean oil meal replaced meat and fish meal to the extent of 6 per cent of the ration for growing turkeys, it showed a slight advantage in growth at 8 weeks, but no significant advantage over the 28-week growing period, as judged by the final weight of bird and number of pounds of feed required to produce a pound of gain in weight. These conclusions are reported in Bulletin 229, "High Lights in Agricultural Research in Idaho," published by the University of Idaho.

## Observations on Methods of Fattening Chickens

The effect on gains of the numbers of feeds per day and the length of the fattening period was studied by A. J. G. Maw and W. A. Maw at Macdonald College, and reported in The U. S. Egg and Poultry Magazine, June, 1939. Two feeds per day gave definitely smaller gains than three or five feeds. Results showed that the birds getting a larger number of feeds per day convert more of the feed consumed into gain.

Results of the experiment also showed that gains are small on a short feeding period. There was a high variability in the amount of daily gain made by individuals. Individual and environmental factors appeared to influence the daily feed consumption to a large extent. Gains tended to be more uniform after the tenth day of the fattening period.

## Selective Breeding Decreases Mortality of Layers

By using old hens as breeders, particularly those families which had good livability during the first laying year, and by selecting old cock birds which have proved themselves or cockerels which have a large number of sisters in the laying house exhibiting high livability, the Idaho Agricultural Experiment station reduced the laying house mortality in its pedigreed White Leghorn flock from 44.6 to 17.6 per cent in five years. The results are reported in Bul. 229, "High Lights in Agricultural Research in Idaho."

The combined mortality resulting from fowl paralysis and leukemia decreased from 24.1 to 6.9 per cent.

## Effect of Feeding Cottonseed on Quality of Storage Eggs

Deterioration in eggs while in storage, resulting from feeding the layers cottonseed or cottonseed meal and substances of other plants of the same family as cotton, was investigated by F. W. Lorenz at the University of California. He reported in Poultry Science, July, 1939 (Vol. 18, No. 4), that two distinct substances in the cotton plant have separate effects on eggs. Gossypol, a toxic, yellow dye contained in raw cottonseed, gives the yolk an olive green color and a gelatinous consistency. The other substance, found in cotton and other plants of the same family, causes an abnormal enlargement of the yolk and a reddish color of yolk and albumen. Eggs from hens fed cottonseed develop a combination of these abnormalities. Eggs from hens fed plants containing the other substance mentioned, develop only the latter group of defects.

## Feather Growth in Chicks

Feathering in growing chicks, as influenced by various factors, was subjected to a study by Radi and Warren of the Kansas Experiment Station. It was observed that the level of vitamin A and G, respectively, were of questionable value in promoting feather growth. No significant differences were observed when comparing oat feeding to corn and wheat.

Lower room temperature, that is, 85 vs. 68 degrees Fahrenheit improved the feathering of the females by 28 per cent, of the males by 19 per cent; it also increased death rate and, without significantly increasing the body weight, resulted in greater feed consumption.

Thyroxine injections stimulated feather growth. This might be the explanation of better plumage under low temperature, since Landauer at the Connecticut Experiment Station found the low temperature stimulates the functions of the thyroid glands in chicks. It seems possible that with rations low in iodine, an improvement would be effected by the feeding of iodine.

Females appear to be more responsive than males to changes in diet and environment.

Breeding from chicks selected for good feathering was practiced with excellent results for 4 years. Most of the improvements were obtained in the first two years of selection.

Anyone desirous of improving the feathering of chicks particularly broiler chicks, will find it worth his while to study the detailed report as it appeared in the Jl. of Agr. Res., Vol. 56, No. 9.

—Carl H. Schroeder, Everybodys Poultry Magazine, June-July, 1939.

## Effect of Management on Production and Livability

Five different plans for managing chicks and growing pullets, tested five successive years by D. C. Kennard and V. D. Chamberlin at Ohio Agricultural Experiment Station, consisted of (1) isolated range after two weeks of colony brooding; (2) non-isolated range after two weeks of colony brooding; (3) non-isolated range after eight to ten weeks of colony brooding; (4) wire sun porches connected with a colony house; (5)

brooding and growing batteries. In all cases, when pullets were ready to lay, they were divided into two groups, one placed in batteries, the other in floor pens.

The investigators report in Poultry Science for July, 1939 (Vol. 18, No. 4), that none of the management procedures proved more than partly effective in reducing mortality in pullet layers.

Egg production in floor pens averaged highest from pullets raised on isolated range. Total egg production from pullets in laying batteries slightly exceeded that of similar pullets on the floor. Chicks on range after two weeks were superior in egg production and livability to those confined in sun porches eight to ten weeks before going to range.

In 23 of the 25 groups of pullet layers, livability in laying batteries was consistently better than that of similar pullets in floor pens. Freedom of battery layers from respiratory troubles was definitely noticeable throughout the five years. However, there was a higher incidence of pullorum disease among pullets in batteries than those on the floor. Pullets brooded and raised in batteries were unsatisfactory when placed in floor pens, while those continued in batteries proved quite successful.

## Wheat Germ Oil Fails to Prevent Fowl Paralysis

Wheat germ oil had no appreciable effect upon the occurrence, type, or age at onset of lymphomatosis, of which fowl paralysis is a manifestation, according to Lewis W. Taylor and K. B. DeOme, University of California, whose results are reported in the Journal of the American Veterinary Medical Association for July, 1939 (Vol. 95, No. 448).

## Lights for Breeders

Lights for breeders did in no way impair fertility or hatchability of the eggs nor the livability of the chicks produced, according to extensive observations which Bartsch presents in the German Archiv of Poultry Science (Vol. 12, Nos. 11-12).

—Carl H. Schroeder, Everybodys Poultry Magazine, June-July, 1939.

## Sulphur Effective in Soil Sanitation

Commercial flour sulphur applied to the soil in yards where poultry is confined continuously was found to be of practical assistance in disease control, according to M. W. Emmel, Florida Agricultural Experiment Station, who reports three years of observations in the Journal of the American Veterinary Medical Association for April, 1939.

The action of soil bacteria on sulphur produces sulphuric acid, which increases the acidity to the extent that practically all forage ceases to grow. This increased acidity results in the disappearance of all of the intermediate hosts of poultry tapeworms (snails, slugs, earthworms, etc.), whose life cycle is associated with the soil. The life cycle of the common roundworm is also retarded.

Commercial flour sulphur, which is different and costs less than flowers of sulphur, is broadcast over the surface of the soil at the rate of 800 pounds to the acre (1.9 pounds per 100 square feet) and mixed with the top soil with a rake.

Soil which has been so treated will have to be limed before it can be used for crops again. Three times as much ground limestone or one and a half times as much hydrated lime as the original amount of sulphur should be incorporated in the soil several weeks prior to planting.

## Sulfanilamide for Coccidiosis

Sulfanilamide, the drug which has been used with success in the treatment of human bacterial infections, was tested experimentally for its effects upon coccidiosis at the New York State Veterinary College. P.P. Levine reports the results in the Cornell Veterinarian for July, 1939 (Vol. 29, No. 3).

When administered to chickens having coccidiosis, sulfanilamide almost completely suppressed the discharge of oöcysts of five different species of coccidiosis. In a few days after discontinuing the treatment, the discharge of oöcysts was resumed, but at a level considerably below that of the controls. When mixed in the mash at concentrations of one-tenth to five-tenths of 1 per cent, sulfanilamide prevented normal growth.

No method for practical farm use of sulfanilamide has been developed.

## Resistance to Coccidiosis

Resistance against coccidiosis is generally attributed to recovery from a previous infection. Dr. Schmid (German Jl. of Inf. Dis. of Domesticated Animals, Vol. 49, p. 177) conducted experiments which show that resistance to coccidiosis is also ascribable to age, independent of previous infection.

The mechanism which accounts for this so-called age-factor of resistance against some diseases is not fully understood. Recent studies by Dr. Jas. T. Culbertson at the Columbia University Medical School have demonstrated that the degree of susceptibility against some diseases decreases with age, because certain of the cells in young animals have not grown up to the point where they can act as protective agents. This is especially true with diseases affecting liver, spleen and bone marrow. It also explains the resistance of chickens against the fowl paralysis complex after the age of 14 to 16 weeks.

—Carl H. Schroeder, Everybodys Poultry Magazine, June-July, 1939.

## Wheat Germ Oil Helpful in Nutritional Disease of Turkeys

Wheat germ oil was effective in reducing the occurrence of a disease affecting the muscles of the gizzard in young turkeys, according to the work of E. Jungherr, K. C. Seeger and A. M. Pappenheimer, whose experiments are reported in Bul. 229, "Nutritional Encephalomalacia in Chicks and Certain Related Disorders of Domestic Fowls," issued by the Storrs Agricultural Experiment Station.

When a simplified ration was fed to one-week old turkey poults, it resulted in an average incidence of 73.8 per cent of a disease which is characterized by grey lesions in the fleshy part of the muscle of the gizzard. The addition of fresh lettuce or 5 per cent of alfalfa leaf meal failed to provide protection against this nutritional deficiency. Soybean oil was helpful in reducing the incidence of the disease to 41.6 per cent, compared to 73.8 in the non-protected groups.

The incidence of the disease among poults receiving individual doses of wheat germ was 19.4 per cent, compared to 73.8 per cent for the non-protected groups.

This bulletin, which includes the work of other investigators also, discusses nutritional encephalomalacia in chicks and ducklings. Crazy chick disease, a corresponding disorder which has been causing trouble in New England, is also reviewed.

## Variations in Egg Characters in Four Popular Breeds

Differences in 14 different egg characters in White Wyandottes, Barred Rocks, Rhode Island Reds and White Leghorns were studied by G. O. Hall at Cornell University, and reported in Poultry Science for July, 1939 (Vol. 18, No. 4).

No consistent breed differences were found in weight of the egg, weight of yolk, weight of total white, height of albumen, yolk index, percentage of yolk of total egg, and percentage of total white of total egg.

Compared with eggs of the other breeds and average of eggs of all breeds, Barred Rocks eggs were lower in weight of shell, percentage of shell, weight of inner thin white and percentage of inner thin white, but they had a greater amount and higher percentage of thick white.

R. I. Red eggs showed significantly higher percentage of inner thin white of total egg than Barred Rock and Leghorn eggs. White Leghorn eggs had a significantly higher percentage of outer thin white of total white. Wyandottes and Barred Rocks had a lower score for condition of firm albumen, indicating superior egg quality.

Percentage of eggs with blood spots in Wyandottes was 1.0; in Barred Rocks, 6.0; in R. I. Reds, 7.8; and in Leghorns, 5.7. Meat spots were more numerous in eggs of Barred Rocks and R. I. Reds than in other breeds.

## Poorer Hatches from Large Eggs

Data from three separate experiments conducted during 1937 and 1938 at the British Poultry Development Farm, Surrey, England, and reported in Poultry World, May 19, 1939, by F. C. Bobby, showed that large hen eggs weighing 2.25 ounces and over had approximately 7 per cent lower hatchability than hen eggs ranging between 2.0 and 2.24 ounces each. Pullet eggs weighing 2.25 ounces or more were from 2 to 4 per cent lower in hatchability than pullet eggs weighing from 2.0 to 2.24 ounces each.

In all of the experiments the decreased hatchability among the eggs weighing 2.25 ounces or more was traced to the increased number of dead-in-shell eggs.

## *A 26,000-Mile Trip for Eggs*

Australia's last consignment of eggs, 3,200 cases, or 90,000 dozen, was returned to Sydney after traveling all the way to London.

At the end of their 26,000 mile journey last month they were put into cold storage.

The New South Wales Egg Marketing Board, which was short on its storage contracts, decided that the low price in London justified buying back the eggs.

After paying all return freight and charges, in addition to the purchase price in London, and using the eggs to fulfill forward contracts for chilled eggs, the Board calculated to clear 1,600 pounds on the whole consignment.

—Feathered World, May 19, 1939.

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## *English Laws Relating to Straying Fowls and Damage to Poultry*

**Straying Fowls** — Poultry-keepers are legally bound to confine their fowls to the limits of their own property. They are liable for damage caused to flowers, fruit, or vegetables by their birds straying into a neighbor's garden. The escape of a male bird which caused injury to a cock in a neighbor's poultry-run, or interfered with his breeding stock, or of a fowl which, being infectious, introduced disease into a yard, would also render its owner liable to a claim.

It is the duty of both parties to maintain proper and reasonable fences, but this does not mean that A need keep a fence so high that B's fowls cannot fly over it; precautions against this are the latter's concern.

Trespassing birds can be impounded and held against a claim for damage. They must not, however, be killed or injured, or a counterclaim can be made for their value.

Any eggs laid by straying hens on another person's property belong to their owner. He cannot, however, trespass to secure the eggs, but must claim them from the owner of the property.

If fowls stray upon the highway they do this at their owner's risk, for a motorist has equal rights to its use, and providing he is driving with due care and attention, he cannot be held liable for any consequent loss.

On the other hand, poultry straying on to a road are in the nature of an ordinary risk of the road, and motorists, in consequence, would have difficulty in maintaining any claim to damage resulting from a frightened bird dashing across the road.

**Dogs and Poultry**—Under the Dog Act Amendment Bill (1928), in cases of losses or injury to poultry from attacks by dogs, their owners are placed on the same footing as farmers with cattle. Formerly, the law did not consider it a natural propensity of dogs to worry poultry, and generally no claim was successful against the dog's owner unless knowledge of the animal's dangerous propensity could be proved. The Amending Act does away with this condition, which was usually very difficult of proof, and poultry-keepers are now placed in a sound position as regards obtaining compensation for damage done by dogs to their stock.

It is not necessary to prove that all injuries to poultry, etc., were seen to have been committed by a particular dog. If it can be proved that only that particular dog could have been responsible, this would be sufficient to maintain an action.

Again if the guilt can be laid on two particular dogs, the damage will be equally divided between them irrespective of evidence as to the difference of ferocity of the animals.

It is more than likely that the courts would require evidence of one case of being caught in the act, before allowing damages for previous injuries.

**Cats** — Cats are now on the same footing as dogs, with regard to damage done to poultry.

—1939 Yearbook, The National Utility Poultry Society, London.

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IN LEICESTER, England, a man who sold cockerel chicks as "pullets chicks" because they were hatched from pullet eggs, was sentenced to 12 months hard labor for his deception, according to Feathered World.

# Trends in the Hatchery Industry

By W. D. Termohlen and C. C. Warren

*Condensed from Hatchery Tribune*

FIVE years ago, in 1934, a survey made by the U. S. Department of Agriculture reported a hatching egg capacity of 276,000,000 eggs. Today we estimate a capacity of some 400,000,000 eggs. This huge increase in capacity has been caused by at least two separate factors:

First, the fact that the hatchery business has been relatively profitable compared to many other lines of business and,

Second, the continued trend on the part of farmers to buy their chicks from hatcheries rather than hatch them themselves in small farm incubators or under hens.

### Capacity Not Well Utilized

An incubator capacity of 400,000,000 eggs is quite sufficient to hatch all the baby chicks needed in the country, including the huge quantity that is now hatched in farm incubators and under hens. Actually, however, this huge capacity has not been very efficiently utilized. In 1934, for instance, it was estimated that the average hatchery in the United States set only 2.6 eggs for each egg capacity that their incubator would hold. This means that the average hatchery in 1934, if operated at its full capacity, could have hatched its total annual supply of chicks in about eight weeks.

It is believed that this low rate of utilization has not shown much if any improvement since 1934, and is, therefore, still too low for efficient operation. Government statistics indicate that the number of baby chicks hatched in commercial hatcheries in 1938 amounted to about 700,000,000 chicks. This means that the average hatchery utilized the incubators only about 2.7 times.

### Two Types of Hatcheries

During the last few years, competition has forced hatcheries to specialize in certain types of production. At the present time, there are two major types of hatcheries: breeder hatcheries and commercial hatcheries.

The breeder hatcherymen, as we all know, attempt to produce baby chicks and pullets of more than average quality. These are the breeders who hatch only from their own flock and generally operate their incubators in only the spring months. Usually the breeder hatchery is a comparatively small enterprise, and attempts to make a profit not on a large volume of production but on high quality production.

On the other hand, the commercial hatcherymen seem to be interested primarily in a large volume of chick production which, though meeting certain minimum breeding requirements, are not what might be called "high quality stock." Their incubators are often operated every month of the year, and in conjunction with their hatchery business a great many of them sell poultry supplies, remedies and feed. Their hatching eggs are obtained from many farmer-owned flocks which are serviced and inspected by the hatchery owner. Many of these hatcheries undertake to purchase all the eggs and poultry produced by their flock owners during the whole year, and thus they are acting as produce buyers. It is in the commercial group of hatcheries where we see some real economic significances during the period ahead.

Poultry-Dairy Publishing Company, Mount Morris, Ill.
(Hatchery Tribune, July, 1939)

Another type of hatchery which is becoming more important every year is the one that is primarily interested in producing broiler chicks. These chicks are often cross-breeds, and the hatcheryman specializes in selling them to broiler producers. This type of hatchery is fairly new, and is located in or near the few areas where broiler production has become an important business. Their future expansion is entirely dependent on how much further the broiler industry can be expanded.

### Can Industry Keep Expanding?

Let's look a few years into the future and see if we can determine what Fate has in store for the hatchery industry. Can the industry go on expanding as it has been doing since 1934? Several important problems are coming to a head, and it is better to face them now rather than later when their solution will be more difficult.

First of all, it is believed that between 1950 and 1960 the population of this country will reach its peak, with about 10,000,000 more people than we have today. This means that the poultry and egg industry cannot continue to expand indefinitely.

During the next few years, the average number of eggs produced per hen is expected to continue increasing so that every year fewer hens will be required to produce the same quantity of eggs. It is quite possible, therefore, that after 1950 or 1960 we shall reach a point where the total number of hens on farms will have to be decreased in order that the markets will not be flooded with eggs and poultry.

What does this mean to the hatchery industry? It means that the time is coming when the annual production of baby chicks will also have to be decreased.

The hatchery industry must realize in planning its future that there are at least these two fundamental reasons why continued expansion of incubator capacity will bring grief and hardship. Not only in methods, but also in equipment, must hatcherymen keep abreast of the march of progress toward producing higher quality products.

## A Summary of Facts That Control Hatchery Growth

| | 1880 | 1890 | 1900 | 1910 | 1920 | 1930* | 1938* |
|---|---|---|---|---|---|---|---|
| No. Chickens on Farms Jan. 1 (thousands) | 141,000 | 195,000 | 260,000 | 322,000 | 359,537 | 468,491 | 387,251 |
| No. Chickens Per Capita | 2.82 | 3.10 | 3.42 | 3.50 | 3.40 | 3.81 | 2.98 |
| No. Eggs Produced Previous Year (thousand doz.) | 456,911 | 819,723 | 1,293,622 | 1,574,979 | 1,654,045 | 3,255,583 | 3,083,166 |
| Av. No. Eggs Produced Per Bird on Hand Jan. 1 | 38.8 | 50.4 | 57.9 | 61.7 | 64.7 | 93** | 105.6** |
| Eggs Produced Per Capita (Doz.) | 9.14 | 13.02 | 17.03 | 18.00 | 18.28 | 28.6 | 26.1 |

All figures from reports of the U. S. Bureau of Agric. Economics.

*Figures from revised report issued in December, 1938.

** 1930 and 1938 average production based on number of hens and pullets only. Previous averages based on total number of all chickens on hand January 1. The 1930 figure, if calculated in the same manner as those of previous years, would be 74.7

### Two Favorable Factors

Three are only two favorable factors in the outlook. Not all chicks in the United States are hatched in commercial hatcheries, but every year a larger percentage is being so hatched. It is believed that about 40 per cent of the nation's annual crop of chicks is still being hatched in farm incubators or under hens. We can never hope to have all chicks hatched in commercial hatcheries, and so we are approaching the time when no more expansion in this direction is possible.

Since commercial hatcheries play the same role in the poultry and egg industry as does the iron ore mine in the steel industry, the future plans of commercial hatcheries must be geared to the needs of the poultry and egg industry. In the past, hatcheries have been one of the major forces causing expansion or contraction in the poultry and egg industry. It is apparent to serious observers that the hatchery industry can be of great help in stabilizing the poultry and egg industry on such a basis that the operation of the law of supply and demand will not result in a boom one year and a depression the next for our poultry and egg producers. It can be made to be an "economic governor."

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## *Use of Plywood Coverings for Brooder Houses*

The use of plywood in covering movable brooder houses was tested at Iowa Agricultural Experiment Station by Henry Giese and George H. Dunkelberg, and reported in Agricultural Engineering for May, 1939.

Three 10 by 12-foot, arched-roof brooder houses with glued bent rafters covered by plywood panels were constructed and tested for strength and rigidity. Floors also were made of plywood. The first house was painted inside and outside with aluminum paint. The second house was covered with asphalt roll roofing fastened to the roof with hot asphalt and roofing nails. The third house was painted outside with aluminum and was fabricated in sections. These brooder houses were compared with the ordinary shed type of brooder house found on most poultry farms.

The plywood houses had less exposed area, smaller cubic content, and considerably less weight than the ordinary type of house, although floor space was just the same. The authors claim that reduction of exposed area and cubic content should make the house easy to heat. They found that a plywood roof covered with a dark roll roofing absorbs heat readily from the sun, and further insulation or ventilation would be necessary on bright, warm days to keep inside temperatures low.

Brooder houses with glued plywood construction were found to reduce air infiltration to a minimum. They averaged 950 pounds each, and were strong and rigid, enabling them to be moved from one place to another with little or no damage. The authors concluded that at the present time it looks as if the annual cost of movable brooder houses can be reduced nearly 40 per cent by using plywood, but further tests are necessary to verify this estimate.

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# Diary of a Poultryman

By P. S. White
Egg Farmer, Wayne County, Ohio

*Reprinted from Everybodys Poultry Magazine*

**July 1**—"Egg quality, like London Bridge, is falling down," says Ralph Sheppard, our egg inspector on the auction. "Live poultry volume, like our national debt, is on the up and up," says Harold Sidle, our chicken inspector. Guess I am caught in between, the big squeeze so to speak, between the London Bridge and the national debt. But I have been squeezed before in this chicken game. If I can just keep from getting squashed, that is the big idea.

Walter Buss, was out this morning bearing tidings. Last night I was elected by the board of directors to be a member of the board.

**July 2**—It is Saturday and Monday is the Fourth. Not only do we have all the work up to date, including cultivating the garden, but have enough feed to last over the week end and the holiday. When the stock is well nigh eating its weight in feed daily, it takes some feed, a pile of it. There is no question about it, feed must be on hand. I never have been caught short of feed over a week end, but here's rapping on wood.

**July 5**—Everybody took a vacation yesterday except the Old Man and Donn White. We stuck around all day and took care of the stock. No new projects, as they say down along the Potomac, were undertaken. We were satisfied to keep the work up to date, that is, everything but packing the eggs. I felt last night that I would just let them go until tonight. Now I have twice as many to pack and I am even more tired than I was last night. The way of the transgressor is hard, especially in this chicken business, when everything is on a "must" basis. The stock must eat to lay eggs, and I must get the eggs in order to eat.

**July 6**—I have it in my head that there is some kind of transgressing varmint monkeying around out on the range at night. Donnie found a couple of bunches of feathers this morning. About 100 feet further on he found the running gears of a chick. There were no other clues that we could detect but all indications point to carnivorous varmint. Tonight we will set some steel traps and see what takes place. I didn't raise these chicks to be cannon fodder, if this is the proper term to use. When I can beat an army of coccidia and worms only to fall foul of a varmint, it burns me up. It is flies in my soup, so to speak.

**July 7**—Well, there was nothing in the traps this morning, but there was another dead chick. They are starting to roost in the trees, so there is no way of putting them under lock and key.

We were out on the range at 4 a.m. catching cockerels for today's auction. It builds the load too high on the little truck to haul 20 coops. So I made two trips, 10 coops, 250 broilers, each load.

**July 12**—That Ralph Sheppard goes around shaking his head every time I see him. It seems that egg quality is

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on the down and down. The producers are evidently too busy with their farm work to take care of the eggs properly. Consequently, the quality drops like a ton of bricks. The boys in the candling room can read egg quality the same as I can read box car letters in the headlines of the newspaper. When one is working out in the wheat or hay field, I suppose it does seem foolish to stop and collect a few eggs. But on the other hand, the weekly egg check shrinks, and sometimes very noticeable. Whenever my check is down, I can tell it at just a casual glance.

**July 13**—This varmint out on the range is getting on my nerves. It is past the flies-in-my-soup stage; it is getting to be a catastrophe. A chick has been killed every night, sometimes two, for about long enough. If it keeps up until we house the pullets, I am afraid there won't be any to house. Donnie has set traps all over the ranch and we have "cyanided" every hole found. I am well nigh at my wit's end.

**July 14** — Seven-thirty a.m. found me standing on the auction platform with the second load of broilers. The boys couldn't handle my stock right away as there was another truck load ahead of me, so I went in the candling room and helped one of the girls on the egg grading machine. All I could do was to take the eggs off of the trays and pack them in the cases. I suppose I was more of a nuisance than a help. The Thursday sale means double work, for the live auction is held only once a week. Poultry volume has just about reached the capacity of our building. Guess it will be necessary to put an addition on it before long.

**July 15**—Yes, it is nice to have a fat chicken and egg check once a week. Today was collecting day for me. Every Friday, after unloading the eggs, I go up in the office for the check from the last two sales. Then I go to the bank. It is nice business, a regular white collar job. But the rest of the time it isn't such a soft job. Not by a long shot is it so soft. Varmints working on the chicks, too much dust in the air for the old man and just an awful lot of work to be done. Then when the first of the month comes and huge feed bills stare me in the face, I wonder what became of all those fat egg checks I deposited. I know the bank balance will look anything but fat.

**July 16**—Earl Frontz and I held a grass roots conference this afternoon on trapping. Even Earl wasn't able to determine what kind of a varmint is working on the chicks. But Donnie and I have traps set all over the range, all we had and all of Earl's. One set is worthwhile writing about We took a weak chick and staked it in the center of a ring of 17 traps. Another similar set has ten traps around it. Several ground hog holes at distant points have two and three traps apiece. The old man is worried.

**July 18**—Saw "Buzzy" Grossman, house painter, in town today and asked him to come out and look over the buildings. The dwelling house, barn, and the storage building should be painted this summer by all means. I am a strong believer in keeping buildings in repair. It pays even in the short run. Even at the best a building is short lived enough. With taxes, depreciation, interest on the investment and maintenance I often wonder if it pays to own a building. The galvanized roof on the barn has been on for 10 years. A few rust spots are appearing so it will need to be painted. Smoke from the storage building has blown over that roof and caused rusting. It will need to be painted too.

**July 19**—Something is going to be done tonight about this varmint business. This morning Donnie found a few hairs in a trap that had been sprung. Something evidently got in the trap and then got away. Tonight Verne Chamberlin brought over two traps that one often reads about but seldom sees. They are bear traps, double springs, complete with log chain and double anchor hooks. I have warned Donn White about getting caught in them for I know if I would happen to step in one I would be there until someone turned me loose. They are the biggest traps I ever saw. We baited them with a runty live chick tied loosely to the trigger pan. If anything less than an elephant bounces on the chick it is going to be too bad.

**July 20**—Brought out some auction coops for tomorrow's cockerels. We will start catching them at daybreak and make two trips again. They are beginning to go up in the trees in increasing numbers and the first thing I know there will be a bunch of them left until the fall round-up. Then they will be to stodgy to bring a fair return if one can call selling cockerels below the cost of production a fair return. Anyway, it is a good policy to get rid of them—anything to reduce this feed consumption. There was nothing in the traps this morning. Probably the animal was scared away by such a lavish display of traps. But my suspicions are aroused. Maybe it is working on the round brooder houses. I didn't see any signs but—.

**July 23**—Buzzy Grossman was here to look over the paint job. I thought my buildings were in pretty bad shape, but he says they look good to him compared to some he has painted. If he had added a few more dollars on his paint bid I think it would have been cheaper for me to have given him the buildings. It wasn't quite that bad, but when one starts to paint the cost is staggering, and with all this corruption in the air, I am beginning to stagger in the strictest meaning of the word.

**July 25** — I knew it was going to happen all the time. Here I am almost flat on my back and can't breathe—too much dust in the air—too much rag weed pollen—too much corruption of all kinds—all in the air. Kid White phoned Dr. Kennard that he might be short a speaker for Poultry Day. Then she phoned the doctor, the M.D., and the doctor was here twice today; I am getting the works. I am willing to do anything to get out of this mess I am in now. There is so much work to be done and here I am, down and out. Donnie reports that the varmint is still working on the chicks; that he is changing the traps to new locations.

**July 26**—Dr. Kennard phoned about sun-up to ask how I was. The doctor was out early this morning and again just after supper. I guess I am a rooster with the pip; anyway, I wheeze and gasp for breath. Kid White packed eggs until late last night and Harold took them to the Auction this morning. It's great to have such cooperation on the part of all.

**July 27** — Dr. and Mrs. Kennard were out here after supper to see what was what. The M.D. was out twice. I wish I knew what tomorrow will bring forth.

**July 29**—I made a speech yesterday and don't know what I said. I have a hazy recollection of folks telling me I made a good speech, but I am wondering what I really did say. Dr. Wright gave me a shot in the arm yesterday morning; I took a bath; Kid White took me to the barber shop for a hair cut, shave and shampoo. Then we went to Verne Chamberlin's for lunch. Verne lives on the station grounds. I heard Director Secrest introduce me to about 5,000 people. All I remember is that there was a blurry mass of people before me. I grasped the speaker's table with both hands for support; broke into a cold sweat from exhaustion; my eyes wouldn't focus, so I had difficulty reading my notes, but I must have said something.

**July 30** — There have been several telephone calls today from folks who were interested in my well being. It seems that they wanted to know how I survived Poultry Day. There were probably more folks there who realized my condition than Kid White and I imagined. The indications are that I will be working again before long.

## *Isolate the Ailing Birds*

Experienced breeders often tell us that they do not provide a hospital for ailing birds; they prefer to kill them promptly to prevent any risk of spreading this or that disease.

In favour of such a drastic policy is the fact that they are able to diagnose from experience in the field approximately what ails each bird. The beginner has not this knowledge, yet it is wise for him also not to run any risks.

We will therefore agree to take from the flock every bird immediately it shows signs of ailing or being "off colour." But how are we to tell promptly which bird in a flock is off form? In the first place, we shall be particularly observant at feeding-times, for the first indication that something is wrong with a bird is loss of appetite, drinking water sometimes being preferred to food. If, therefore, we notice a hen which stands aside while the others eagerly consume their mash, it will be promptly caught. An empty crop will confirm the diagnosis; a full and very hard crop will make us suspicious of crop impaction.

Let us take next particular note of any bird which stands and mopes about, whether in the house or run. An invalid may go to roost in the daytime. When there are proper isolation arrangements, based on the head of stock kept, one can be certain that every bird will be removed from the flock immediately it shows signs of being sickly or out of sorts. Without them there will be no systematic treatment of the invalids.

Now where shall we put the invalids? A set of battery cages erected in a suitable building must appeal to us because each bird is on its own, and can be specially fed while under observation.

Those birds which do not respond to the particular treatment given them and to special feeding will be killed. Others which do respond may remain in battery cages or be moved into outdoor convalescent coops with attached runs.

—Condensed from Poultry World, London, June 23, 1939.

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# Green Pastures Make Good Pullets

By Edmund H. Reeman

***Condensed from New Jersey Farm and Garden***

FORTUNATE is the poultryman who possesses green pastures. There is nothing to beat a fresh green blade of grass clipped by the chick's own beak. Raising a husky pullet bred to lay and grown to stand the pace of heavy and continued production is the biggest job on any poultry farm. I don't say such pullets cannot be raised under synthetic conditions, but it is easier and simpler to raise them on open ground covered with a good green sod.

Producing eggs under modern and efficient commercial farm management is a highly artificial business at best, and the bird that is given a close-to-nature life during its development is likely to endure the strain of things better than many of the other babies that are artificially brought up as well as artificially incubated.

### Careful Planning Works Wonders

Green pastures are a difficulty on many small poultry farms, but it is astonishing what can be done by careful planning. It is astonishing, also, how much hard usage a good sod, once well established, will stand. My four ranges are not more than a few acres apiece, are used in pairs in alternate years, carrying through two crops of chickens of at least 1,000 birds a crop each season. If you look over last year's range today, you can hardly tell where the colony houses stood before they were moved. And when the chicks went out on this year's range, it would have been hard to believe that 2,000 chickens had been clipping grass vigorously over a long season on that same patch two years before. Yet, in the meantime, nothing had been done to it except several mowings last year.

It looks now that all I shall need to do after this season's foraging will be to give it a dressing of lime and a light coating of fertilizer some time during the winter or early spring and let it lie idle next year again, perhaps stealing a load or two of hay off it on the side.

The problem of getting a good stand of green feed on our light south Jersey soils is sometimes serious. The formula I have found most successful is 3 pounds of timothy, 3 pounds of Canada blue, 3 pounds of Kentucky blue, 4 pounds of red top, 6 pounds of alsike clover, and 2 pounds of white clover, a total of 21 pounds of seed to the acre. I have usually used half as much seed again and found it paid. In this area the best seeding time for this mixture is August 10 to September 10, whenever there is a good prospect of rain. The ground should be plowed well ahead, limed and fertilized a little and allowed to settle thoroughly. Then keep down the weeds and after the seed is sown see that it is rolled or otherwise well smoothed and compacted. You should have a field next spring that will resemble a first class lawn and that will make many chickens very happy.

### Lawn Clippings for Layers

I believe that green pastures have an important place in the whole farm

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(New Jersey Farm and Garden, June, 1939)

program, including the care of the laying flock. Over as long a season as possible, I always try to have some green food to feed the layers every day. At the moment, the birds are receiving lawn clippings, which they enjoy enormously.

This grass, however, is merely a makeshift until the Swiss chard is grown enough to feed. A patch 40 x 160-feet keeps me well supplied with green feed all summer. Following this, I try to have a cabbage crop of one of the winter varieties, which I start to feed as soon as the Swiss chard is gone. This is left standing and growing to the end, usually around Christmas. After that, it has to be germinated oats again.

The only word of caution is, don't overdo the daily amount if you must have regard for yolk color of your eggs. Four to five pounds per 100 birds daily is the standard recommendation.

## *Interesting People Visit a Hatchery*

A hatchery is an interesting place. It is like an absorbing book. You find yourself wondering what adventures tomorrow will bring forth.

You can never tell about these farmer customers. The tall, grizzly individual with trousers tucked into muddy boots may surprise you with his psychological knowledge of life.

Or the price-wrangling lady in the rummage sale coat may casually remark, as did one of our customers, that their "twentieth oil well came in yesterday."

There was the little, fat, bald-headed man with baggy trousers who announced proudly, over a box of Barred Rocks, that he was the father of a popular movie actress. Later, he brought in a portfolio of her photos to show us.

Yesterday, a prim little lady drove to the hatchery in a farm wagon. She was a movie come to life. Her long billowing skirts reached the floor. Her hat was the latest model of the eighties. She carried a pail of custom hatching eggs packed carefully in cornmeal. Laboriously, she unpacked them herself, bidding us curtly to "rest 'em before you set 'em."

You find yourself learning, too.

"I raise frogs for a living," one of our customers told me. Frogs—the subject was new to me and interesting. During the next 30 minutes I learned about frog raising from him. Just as I learned about pedigreed chukars from the fancier who brought us chukar eggs to hatch.

These farmer customers with old-fashioned, neighborly friendliness bring us gifts, too, a mess of green onions sometimes or plants for the rock garden. Once I made the mistake of offering to pay for them, but I'll never make that mistake again. This morning I found my desk adorned by a bouquet of fragrant purple lilacs, left by a customer whose face I couldn't remember.

One dear old lady, well up into the 80's, whom I had met once before, brought me a gift of salt risin' bread, when she came for her chicks. She told me of her girlhood days, too. And the calendar turned back and I was in a yesterday of flickering candlelight, log cabins and spinning wheels.

Yes, a hatchery is an interesting place. But so is all life interesting to those who have eyes to see.

—Mrs. R. V. Jared, Hatchery Tribune, June, 1939.

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# The Care of Layers in Batteries

By D. C. Kennard and V. D. Chamberlin

Ohio Agricultural Experiment Station

*Condensed from the Ohio Bimonthly Bulletin*

POULTRYMEN contemplating the use of laying batteries should consider the advisability of beginning on a small scale first to see whether batteries prove a failure or a success under their particular conditions of operation. Moreover, a modest beginning permits the poultryman to learn a primary essential—whether or not he likes working with layers in batteries. Some do and succeed; others do not and fail.

If a poultryman likes working with layers in batteries, and if he can meet the special requirements, such as weekly culling, a supply of suitable birds always available for replacements, adequate housing for batteries, proper ventilation for the battery room, and numerous other requisites, he should be able to succeed if too large-scale operations are not undertaken.

The operation of laying batteries on a large scale is attended by many unforeseen difficulties. The only reasonably safe approach to large-scale operation is starting and succeeding on a small scale first. After the first essential accomplishment, the next would be gradually to increase the capacity over a period of years, largely by means of self-capitalization rather than by the introduction of outside capital. In this way the large-scale operation of batteries for layers could be made a sound business venture.

It might seem that the feeding and watering of layers in batteries would be simple matters, but they have not been. Most problems of this kind become simple after a long-time experience of trial and error. Such has been the evolution of feeding and watering equipment, as well as methods of feeding layers in batteries during the past 10 years.

Feed and water troughs were first placed on the batteries crosswise so that each trough served four layers. These were quite satisfactory from the point of feeding, but were otherwise inconvenient and occupied too much valuable battery space. They were, therefore, abandoned.

### Feeding Equipment

Abandonment of these first feeders was followed by individual feeders in front of the cages; in some instances these individual feeders were divided into two or three separate compartments for whole grain, mash, and shells. The individual compartment feeders were not satisfactory. The next development was front feeders, with or without compartments, to serve 2 or 3 hens. Now, after 10 years of trial and error and experience with all types of feeders for laying batteries, satisfactory feeding equipment has been developed.

Feed troughs should be of no greater capacity than necessary to prevent wastage of feed. The most desirable width and greatest depth of the feeder are both 4 inches. The V-shaped bottom with the short side toward the battery makes the feed easily accessible. Brackets should support the feeders so that the inner

Ohio Agricultural Experiment Station, Wooster, Ohio
(The Bimonthly Bulletin, March-April, 1939)

top edge of the feeder is 7 inches above the wire floor.

The feed trough should be without partitions or compartments and should serve 4 to 10 layers. The length of the feed trough in this type of equipment is limited to that which can be handled with reasonable convenience, since it is generally necessary to remove the feed trough when a layer is removed or replaced.

### Watering Equipment

At the Ohio Station watering equipment inside and outside the batteries has been tried. This equipment has included cups, wire loop drip waterers, and troughs, with and without drip water supply. The watering equipment now being used consists of galvanized sheet metal troughs which extend across the front of each tier of cages directly above the feeders.

The water comes by means of a drip from water under pressure or from a supply tank into the closed end of the top water trough and flows through the three tiers of troughs. Any surplus water finally flows down the drainage wire from the lower trough to the floor and passes through a drainage channel (about one-half inch wide and one-half inch deep) in the cement floor to the floor drain.

### Feeding Layers in Batteries

Tests carried on at the Station indicate that coarse all-mash or whole grain and mash rations can be used with equally satisfactory results. A single feed mixture is convenient and requires less skill to use.

Fresh feed is given morning and evening in the amount that will about be consumed before the next feeding period. The feed is redistributed before the birds mid-forenoon and mid-afternoon, which practically amounts to feeding four times daily. The use of continuous feeders (without partitions or compartments) each accommodating 4 to 10 layers and the redistribution of the feed are important in the feeding of layers in individual batteries. No two hens eat the same amount of feed, and the individual consumption of whole oats, oyster shells, and grit varies greatly. This individual variation has presented one of the most difficult problems in the feeding of layers in individual cages. The continuous feed troughs and the mid-forenoon and mid-afternoon redistribution of the feed have proved the most satisfactory solution of that problem.

A layer in high egg production may have all the feed within reach consumed by mid-forenoon or mid-afternoon, and with redistribution of the feed she gets a chance to share the surplus feed, whole oats, shells, or grit not consumed by her neighbors. For example, the layers in the highest rate of egg production probably need, and certainly will often consume, more oyster shells than 5 per cent of the total feed. With redistribution of the feed twice daily the best layers get a chance at the shells not needed by other birds. It is a comparatively simple matter to feed 4 to 10 layers as a unit; whereas catering to the individual requirements of birds, as is necessary when individual feeders are used, becomes needlessly difficult and time consuming.

### Livability and Egg Production

Layers in batteries have rendered a favorable account of themselves in both livability and egg production in all the experiments conducted by this Station since 1924. During the past 5 years pullet layers in batteries have been tested in direct comparison with pullets in floor pens. Since livability of pullet layers has of late years become the question of greatest concern, how did the layers in batteries behave in this respect as compared to similar pullets in floor pens? Here the battery layers won a high score. In only two of the 25 tests did the loss of pullets in the battery groups exceed that in the floor pens.

The average rate of mortality (including culls) of the layers in batteries in the 25 tests was 37 per cent; that of similar pullets in floor pens was 51 per cent. There was little difference in egg production. In 13 of the 25 tests, the pullets in batteries laid more eggs than the pullets in floor pens. The average for the 25 tests was 7 eggs per bird (computed on the basis of the original number of pullets at the beginning of the tests,) in favor of the pullets in batteries.

From these results it would seem that in so far as the behavior and performance of the layers in batteries are concerned, the question of success or failure with layers in batteries is largely to be determined by the caretaker, his management, and whether or not he can meet the special requirements of keeping layers in batteries.

## A Cobblestone Turkey Yard

The first cobblestone turkey yard was constructed at the Lake City Station in 1937. It seems to offer a simple yet promising method of yarding turkeys for the control of blackhead. This is a permanent yard, 75 feet square, and for convenience, adjacent to the main turkey house. It is provided with an inexpensive shelter which will accommodate from 75 to 100 turkeys to maturity. The yard proved so satisfactory during the first year that a second one of the same size was established in 1938.

The essential feature of the yard is that the ground is covered with stones that vary in size from one to three inches in diameter. A three or four-inch layer of these stones is spread over the lot so that the turkeys do not come in contact with the surface soil. Each rain washes off the droppings and the yard looks clean, even during summer months when rains are less frequent. The turkeys also have clean feet. Each spring the stones are loosened with a spring-tooth harrow and occasionally more stones may be added. The stones are obtained from a gravel pit and are the larger screenings that are rejected in the production of road gravel.

—Michigan Agricultural Experiment Station Quarterly Bulletin, November, 1938.

¶ THE new English dictionary being compiled by the University of Chicago reveals 16 combinations of "egg" came first into being in our language. They were accepted from slang originations. Some are egg-nog, egg-nogging, egg-pecking, egg-beater, egg-coal, egg-drop, egg-fish and egg-pop.

Egg-nog was accepted as early as 1775. Egg-pecking is the practice of knocking eggs together at Easter time. Egg-nogging was first placed in print in the Saturday Literary Messenger in 1845.

—Poultry Supply Dealer, July, 1939.

# How to Vaccinate

By George Kernohan
Poultry Pathologist, in Charge of the Laboratory
of the Poultry Producers of Central California

***Reprinted from Nulaid News***

FOWL pox is an infectious disease caused by a filterable virus, a class of living organisms too small to be seen by the aid of microscopes. This disease may affect fowls of any age, although an outbreak among chicks or pullets is the exception rather than the rule. Fowl pox is quite prevalent among fully developed fowls that are in egg production.

Outbreaks of pox may occur at any time of the year. The severity of the infection varies from a mild attack with little loss in egg production and low mortality, to greatly lowered egg production accompanied by high mortality. The severity of the disease is generally greatly increased during cold, damp winter weather, when it may be complicated with severe colds and roup.

### Visible Symptoms

The disease is manifest by the development of small yellowish-brown nodules on the comb, wattles and exposed skin of the head. These may increase in size to that of a garden pea and within a few days after their appearance become dry and wart-like, forming a dry scab which soon drops off without evidence of a scar.

The exact mode of transmission of the infection is not definitely known, but it is assumed that the contagion may be carried from one place to another by sparrows, other free-flying birds and possibly rodents, and that infection occurs through a break or abrasion in the skin. The large comb and wattles of the White Leghorn and similar breeds afford a greater possibility for infection than the smaller comb of some of the other breeds. Although the feather-covered portions of the skin are free from the infection, as a general rule they may be made the site of artificial infection. This fact is taken advantage of in the vaccination of fowls against fowl pox.

### Use of Killed Virus Abandoned

Vaccination against fowl pox was practiced for many years without any great degree of success, due to the fact that a killed virus vaccine was used. It is now generally conceded that immunity against a filterable virus disease develops only from inoculation with a live virus. More than 10 years ago this means of vaccination was developed in Europe for the prevention of fowl pox. It was later used in America with the idea that the vaccinated fowls should be inoculated with the live virus in order to produce a mild attack of fowl pox. Recovery from an attack of a disease caused by a filterable virus generally establishes immunity against later attacks of the same disease.

The first attempts to vaccinate flocks against fowl pox with a live virus vaccine in California were made with enormous doses of vaccine administered subcutaneously by means of a hypodermic syringe. This method was later displaced by the so-called "feather follicle" method, whereby the vaccine was administered by applying it with a small brush to the exposed skin follicles immediately after plucking five or six feathers of the outer portion of the upper end of the thigh. Examination of the vaccinated fowl seven days after vaccination showed the presence of a scab which was considered a "take"—indicating that vaccination was successful. The amount of vaccine used in this form of vaccination was relatively small as compared with the amount used with the hypodermic syringe.

### Stick Method

Another means of administering the vaccine is now more commonly used. It is called the "stick" method. The vaccine is applied by means of needles which are first dipped into the vaccine. The skin is then punctured with the needles on the same part of the body used in vaccinating by the feather follicle method.

The instrument used in the stick method is made by attaching phonograph needles to a small round stick of wood, either by means of adhesive tape or by inserting the blunt ends of the needle into the end of the stick. The exposed parts of the needles should be not more than an eighth of an inch long, since it is necessary only to penetrate the skin when applying the vaccine. A variation of the needle "stick" now popular in the field is made by driving one or two small needles into a small soft pine stick and using the eye-end of the needle for puncturing the web of the wing. The eye of the needle holds a small drop of vaccine and, when penetrating the wing web tissue, furnishes positive inoculation. A needle of one type or another usually accompanies each lot of vaccine.

Although the procedure for vaccinating fowls against fowl pox is not difficult to master, there has been, in times past, more or less complaint against the practice. So we offer several suggestions that we believe it would be well to follow in vaccinating a flock of fowls. The first is that it should be borne in mind that fowl pox vaccine contains the live germs of the disease and is capable of producing a severe outbreak of fowl pox in a flock if proper care is not exercised in handling it.

### Mixing Virus

Further, the vaccine, as received from the manufacturer, consists of two bottles, one containing the concentrated vaccine in a dry powdered form, and the other the diluting fluid. It should be kept in moderately cool place, preferably in a refrigerator, until ready for use, since high atmospheric temperatures have a marked tendency to destroy it.

Recently one manufacturer found that, in addition to placing the dry powder in glass vials, bottling in vacuum aids materially in retaining the potency for a longer time.

### Virus From Eggs

Within the past several years great improvement has been made in fowl pox vaccines. Previously the virus of fowl pox was grown upon the scarified comb of cockerels. The present method consists in the incubation of fertile hens' eggs for a period of 10 to 12 days, then inoculating the membranes of the developing embryo with fowl pox virus. This inoculation is done under aseptic conditions to prevent contamination. The eggs are incubated for several days following inoculation to allow development of the virus. It is then collected (also under aseptic conditions) for the preparation of the vaccine.

Vaccination is sometimes done inside the poultry house but this prac-

Producers Company, Ltd., 840 Battery St., San Francisco, Calif.
(Nulaid News, June, 1939)

tice has serious drawbacks. The chief of these is the excessive amount of dust which is stirred up, making it impossible to keep the vaccine fresh and clean. There is great danger, also, of contaminating the poultry house with fowl pox virus.

### Vaccinating Procedure

The vaccine should be mixed just before it is to be used. In the case of a large flock, where the task may occupy the greater part of a day, it is advisable to mix a small amount of vaccine even two or three hours, rather than mix the entire amount at one time. The bottle of vaccine should be placed in a secure place to prevent its being accidentally spilled. A convenient device for holding the bottle is a short piece of 2x4 with a hole drilled in the top large enough to hold the bottle.

A second bottle may be used to advantage by placing in it enough vaccine so that in dipping the sticking needles into the bottle, the handle does not come in contact with the vaccine. The vaccine in the second bottle can be replenished from the first bottle from time to time as needed, thus keeping it fresh and clean.

For the sake of comfort, a cool, quiet, shady place should be selected in which to do the vaccinating. The vaccine must not be exposed to the direct sunlight, since there is great danger of destroying it by so doing.

### Work Should Be Done Carefully

It has been found that the same amount of vaccine, when used by different poultrymen, will vaccinate varying numbers of fowls. Hence it is well to bear in mind that the object of vaccination is to protect the fowls against subsequent natural infections of fowl pox, and not merely to vaccinate as many fowls as possible with a given quantity of vaccine, as has too often been the case. It has frequently happened that the individual has attempted to "stretch" the vaccine over a greater number of fowls than the amount specified, and later has found a high percentage of "no takes" among the vaccinated fowls.

It should be remembered that if the task is worth doing, it is worth doing well. Care should therefore be exercised in properly vaccinating each individual bird the first time, in order to prevent the necessity for revaccination, or a possible outbreak of pox in the flock at a later date.

Speed is another factor that is often considered important in vaccinating a flock. Here, again, it is not a case of how many per hour, but how well the job is done.

The fowl may be vaccinated any place on the body — some prefer to vaccinate in one region—others in another. The important point, in any case, is to put the vaccine into the skin, a thing that is sometimes overlooked when the operation is carried on too rapidly. The fowl is usually vaccinated on the thigh or in the web of the wing, although in some cases the comb is the site of vaccination.

### Stick Method Now Preferred

The stick method appears to be the one now in most common use and may be used on the different parts of the body mentioned. The applicator most used is the one made from sewing needles, the points of which have been inserted into a wooden handle. As previously mentioned, the eyes of the needles are dipped into vaccine, then plunged through the web of the wing. Done in this way, a "take" occurs on the skin on both sides of the wing. The operator may hold the fowl under the left arm, grasp the wing and spread it with the left hand, and puncture the web of the wing from the lower side.

### Must Observe Egg Type Vaccine "Take" Carefully

With the new type egg-propagated vaccine there is not the large, pronounced scab formation at the site of inoculation. Hence where this vaccine is used, care must be exercised in determining whether or not a "take" has occurred. Frequently it is necessary to examine the site of inoculation by manipulating between the thumb and index finger to determine whether or not the small nodule has developed which is indicative of a "take." The post-vaccination reaction is not as severe with this new form of vaccine as with that which was developed on the comb of cockerels.

Vaccinated fowls should be examined for the purpose of noting the presence of scabs or "takes" at the site of the vaccination seven days after vaccination, to determine whether or not it has been successful. If care has been exercised in vaccinating, the number of "takes" should be 100 per cent.

### When to Vaccinate

Fowls that have not been previously vaccinated or have not had an attack of fowl pox, are susceptible to the disease, regardless of age. Therefore, fowls may be vaccinated at any age to protect them from attacks of fowl pox. The old form of vaccine was usually followed by a severe post-vaccination reaction so that it could not be used in vaccinating hens in heavy production, except under certain conditions. Pigeon pox vaccine, which produces a very mild reaction but has the objection of producing only temporary immunity, was used in such cases; to be followed by vaccination with fowl pox vaccine when the hens had reached a low state of egg production. The new form of egg-propagated vaccine may be used in flocks that are in heavy production, without a severe reaction following vaccination. The better practice, however, is to vaccinate the fowls before they have reached the laying age.

As a general rule, White Leghorn pullets come into production very early, sometimes at four to four and a half months of age. In order to prevent this early egg production, some poultrymen have followed the practice of vaccinating the pullets about the time they reach maturity, and in this way give them a set-back so that egg production is delayed for a number of weeks. This practice may have its advantages, but there is the possibility of delaying vaccination so long that natural infection may occur.

The general practice is to vaccinate pullets at as early an age as possible. For a time it was suggested that day-old chicks be vaccinated, claims being made that less difficulty was encountered at this age than at any other. These claims have not been substantiated. In some instances high mortality has resulted. In districts where coccidiosis is very prevalent it is the safer practice to delay vaccination against fowl pox until after recovery from coccidiosis. Following an outbreak of coccidiosis, the birds may be vaccinated against fowl pox at ten or twelve weeks of age; but unless well recovered from the effects of coccidiosis at twelve weeks, vaccination should be delayed until they have recovered. Quite often it pays to wait until the birds are four months old.

Vaccination of flocks against natural outbreaks of fowl pox have been carried on successfully for a number of years. Methods of vaccination and vaccines have been so improved that such outbreaks are successfully combatted. Poultrymen should take advantage of these developments in order to prevent and, where necessary, successfully control outbreaks of fowl pox.

## *Cafeteria System of Feeding Growing Pullets*

In our experience, in growing Leghorn pullets, no system of feeding is better than the cafeteria method, supplemented with plenty of green feed. Properly operated, the cafeteria system of feeding requires plenty of hopper space and fresh supplies of feed every day.

If sufficient hopper space is not provided, some of the pullets will be crowded away from the hoppers. These birds will then fill up on whatever feed they can get. Or worse yet, they may actually go hungry for long period of time during the day. In any case, their rations may become unbalanced just because of lack of hopper space.

On the other hand, if the hoppers are filled with feed at infrequent intervals, then some of the feeds may be consumed before the others. As a result of this, the pullets will fill up on whatever feed is available and again unbalance their ration.

Attention to these two details make a big difference in the results obtained under the cafeteria system of feeding. To assure true self-help, the pullets must be able to consume the feed they want, at the time they want it. We provide three 4-foot hoppers, with feeding space on both sides, for each 100 pullets. This is about one-third more space than is generally recommended, but the extra space is necessary for best results. One hopper is used to provide growing mash; the second hopper contains the grain mixture (wheat and cracked corn can be used in place of commercial scratch grain); the third hopper contains whole heavy oats.

Now, by providing fresh mash daily, the pullets will tend to eat about the same amount each day. Actual observation has indicated that when mash is fed to the pullets only once a week, they eat a lot of it the first day and gradually decrease the amounts consumed daily, until fresh mash is again supplied. Then their mash consumption goes up again. To a lesser extent this also applies to grain. After the birds have worked the grain over and picked out the kernels they like best, they tend to eat less until a new supply is provided. Oats especially must be watched closely.

Oftentimes, by just glancing at the oat hopper, it seems as though the birds have plenty of oats available. Upon closer examination, however, it may be found that nothing remains but hulls. Therefore, it is our recommendation that if you use the cafeteria system of feeding that you supply fresh feed daily in small amounts—just about enough to last the birds through to the next day. But be sure that no one feed ever runs out because this encourages the stock to unbalance its ration. When the fresh feed is provided stir it in with any old feed that remains in the hopper. Where oat hulls accumulate, the hopper should be emptied before the fresh supply is put in.

—Hannah's R. O. P. Service Bulletin, W. S. Hannah & Sons, Grand Rapids, Mich.

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# Progress in Incubation

By Ralston R. Hannas

*Condensed from American Poultry Journal*

THE history and development of artificial incubation is an interesting one. The development of the modern incubator is largely responsible for the expansion that has taken place in the poultry business in the last 30 years. It has made possible the modern hatchery and the mass production of chicks economically and efficiently.

Artificial incubation was first practiced in Egypt and China and is known to have been practiced for several thousand years before Christ. True, the methods used were very crude, such, for example, as employing men in China to hatch eggs by staying in bed and having the eggs packed close to the body to get the benefit of the body heat. Eggs were also hatched by the heat produced in the fermentation of manure, and, lastly, immense ovens were built and heated for the express purpose of hatching eggs. Some of these ovens exist today, and while they are very primitive, they do a fairly good job of hatching.

In 1750, a man by the name of Reaumer hatched chicks by surrounding a cask containing eggs with heating horse manure. Just a little later, in 1777, Bonneman, a French physician, established hatching ovens whereby heat was conducted from a fire to eggs by the circulation of water. About a century later, that is, in 1870, John Champion of Berwick-on-Tweed hatched eggs by passing two heated flues through a large room with the eggs placed in the middle of the room on a table.

In 1844, the first American incubator was invented and was patented in England under the title of Cantelo's Patent Incubator. It was a hot water machine heated by a charcoal fire, and the regulating device which controlled the temperature in the egg chamber was invented by Vallee, a Frenchman. It was not until 1870, however, when the incubator began to receive serious attention in this country. One of the first patents was awarded to Jacob Graves and was followed later by James Rankin. There was a considerable increase in the development of small incubators from then on, and much credit belongs to Charles Cyphers for developing the incubator in America. He not only experimented with them considerably but accomplished a great deal which reduced the process of incubation to a practical science.

The following makes of small incubators were well known a quarter of a century or more ago: Belle City, Buckeye, Columbia, Correct Hatcher, Cycle Hatcher, Cyphers, H-I Self Humidifying, Keystone, Lo Glo, Old Trusty, Perfect Hatcher and Hover, Perfected Peerless, Prairie State, Queen, Rayo, Reed, Reliable, Roller Tray, Successful, Superior, Wendell, and X-Ray. A few of these were electric, but the bulk of them were operated by kerosene lamps.

### Development of the Mammoth Incubator

The mammoth incubator was the next step in the development of pres-

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ent day artificial incubation. The first mammoth erected in this country was said to have been built in 1895 by Charles A. Cyphers at Stroudsburg, Pa. It was a 10,000 egg affair arranged in trays in a heated room to a height of about 10 feet. The first compartment pipe heated mammoth, however, was conceived by William Hall of Pembroke, N. Y., who is credited with manufacturing the first mammoth incubator commercially. About the same time, Mr. Candee of De Witt, N. Y., developed a compartment pipe heated mammoth. The Hall and the Candee incubators were the first of this type of incubator.

### The Modern Cabinet Type

Names of other makes of this type that were familiar at this time were American, Blue Hen, Buckeye, Buffalo, Newtown, Schwalge-Smith and Wishbone. Some men, especially in the Frenchtown area of New Jersey, built their own sectional incubators. There was one, for example, at the Rosemont Hatchery, that was claimed to be the largest incubator (at that time) in the world, with a capacity of about 100,000 eggs at one setting.

A few years later, the cabinet type force draft incubator appeared. Milo Hastings, Brooklyn, N. Y., is credited with building and operating successfully the first incubator of this type in 1911. It was not, however, until the early 1920's that this type of incubator appeared on the market under patents granted to Dr. Samuel B. Smith, of Cleveland, Ohio, a pioneer in the development of force draft cabinet incubators.

The early cabinet types were rather small, having as little in one case as 2,400 egg capacity. With the growth of the hatchery industry, the demand for larger incubators increased, so that machines with much larger capacities were made up until the present time, when the largest one has a capacity of 78,000 eggs at one setting. Improvements, of course, and changes have taken place in this type of incubator, one of the latest developments being the hatcher only. The purpose of the hatcher is to prevent the flying of down from the hatching chicks and consequent coating of unhatched eggs. When this piece of equipment is used, the eggs are kept in a regular cabinet incubator and changed over to the hatcher shortly before hatching time.

Among the cabinet incubators the following makes are familiar: American, Brower, Buckeye, Buffalo, Bundy, Cugley, Hatchmaster, Humidaire, James, Leahy, Lincoln, Lyon, Makomb, Master, Merriam, Oakes, Petersime, Reliable, Robbins, St. Helens, Smith, Snow, and Sol-Hot.

The newer types of incubators have done much to increase the percentages of hatches that are obtained. In the early days of artificial incubation, if a poultryman was able to obtain a hatch of 50 per cent of the total number of eggs set, or even 50 per cent of the number of fertile eggs set, he considered he was doing well. Present day incubators, on the other hand, do much better than this, and it is no particular trick for hatcherymen to average from 70 per cent to 75 per cent hatches for the season in some of the large incubators. Individual hatches will frequently go higher.

No doubt much of these good results in hatching are due to a better knowledge and understanding of embryo growth. While there is still a great deal to be learned about the growth and development of the embryo during the period of incubation, nevertheless, this does not hold all the mystery that it formerly did.

# VIEWS OF THE EDITORS

## Don't Stop Here

A huge organization of members of the poultry industry has been formed to put across the Congress. That it has worked efficiently as it has is one of the surprises of the year. It's large membership and extensive ramifications throughout the various phases of the poultry industry are drawing the attention of the entire United States. This is the first Poultry Congress sponsored by private initiative. Heretofore, governments of the host countries have put up most of the money and done most of the work. Thus, the Seventh World's Poultry Congress wins another honor as a singular achievement.

Now, here is a gigantic organization, it extends into every phase of the poultry industry from producer to consumer. It has been the hope that the Congress will result in increased consumption of poultry and eggs by the publicity it will create. Will this increased consumption be temporary or permanent? We think that its permanency will be assured if the present World's Poultry Congress organization is continued after August 8 as a special association to foster increased utilization of poultry and eggs and to act as a voice through which the united poultry industry can speak. Let's not stop here!

—Poultry Supply Dealer, June, 1939.

## The Cream of the Crop

Radio listeners are familiar with this phrase as used by a tobacco advertiser. Consumers of eggs have long since learned that the cream of the egg crop is the egg of the springtime. Why not capitalize more on this as an industry? Consumers are always seeking a superior product at a fair price. Spring eggs—the cream of the crop—can be supplied summer, fall and winter at fair prices.

—U. S. Egg and Poultry Magazine, June, 1939.

## Let's Get Together

John Logan of the National Association of Food Chains raises the question: "Why do not dairy and poultry interests get together on some of their big selling and promotional problems?" This was in response to our request that eggs continue to be featured to avoid a surplus. Mr. Logan replied that eggs would be featured during June in connection with Dairy Month.

It is true, we have much in common. There seems to be no very good reason why we shouldn't pat each other on the back occasionally and tell the truth about each other's foods, because of their companion nature and the fact that together they represent the almost perfect food combination.

A well known scientist connected with a dairy company admitted freely recently that egg yolks are a more valuable source of food nutrients than butter-fat. On the other hand, he contends, and we agree with him, that the skim-milk portion of milk has been grossly undervalued. In other words, the protein part of milk might well be rated higher than the proteins in eggs—at any rate, higher than it is now rated.

Most of us would be better off in health and capacity to do work, both as humans and as feeders of hens, if we used more skim-milk and buttermilk. And, from a business standpoint, if we can help the milk people sell values in the fatless portion of their milk and they can help us by telling the merits of our little ball of sunshine—the egg yolk—we might not have to worry so much about surpluses.

It's a nice cooperative problem.

—Poultry Item, June-July, 1939.

## What's Good About It?

Sometime or other most of us come to a point where we wonder whether there is anything worth being optimistic about. We opened a trade paper serving the dairy and poultry interests recently with that idea in mind. This is what we found: Compared with the problem of surplus in the dairy industry, our problems are simple; at least we are not suffering the rebound from price-pegging, such as dairymen are.

There are abuses in the poultry and egg business with so many small distributors, on one hand, and very large ones on the other, that it is hard to put a finger on any problem. But at least it is pretty much an individual problem with us, whereas in dairy the government is in it up to its neck and the labor unions are accused of monopolistic practices and lacking in forward-looking leadership.

Then we turn to the page on "consumption of eggs" and we find that it is running well ahead of last year. As an example, during one week recently the 1939 figures for four leading markets were 233,805 cases, compared with 181,336 cases last year. Storage stocks are beginning to gain over last year, but prices of eggs going into storage are below those of a year ago, there is a reasonable chance for a fairly successful storage deal. That means a better feeling next winter and spring.

The egg-feed ratio does not make us very happy, as it is considerably worse than last year, but not as bad as 1937. However, this may be due to the war scare and the rise in grains. We believe, with the war scare subsiding and as egg prices go up, the egg-feed ratio will be much better. Much depends on the new crop.

In going over this egg situation, we should not lose sight of the very fine work that both the wholesalers and retailers are doing to move eggs this spring. According to one wholesaler in New York City, the receivers are paying above the actual value for the eggs and are selling at cost or below, in order to keep retail prices down and move more eggs into consumption.

Then, lastly, is the good news that the government has designated the following foods as surplus commodities to be included in the list obtainable with Surplus Food Order Stamps —the plan that went into effect recently at Rochester, N. Y., and Dayton, Ohio. These foods include butter, shell eggs, dried edible beans, dried prunes, oranges, fresh grapefruits, wheat flour, whole wheat flour and cornmeal. Judging by the wholehearted support of retailers, this plan has some chance of success. It doesn't help those hard-working, self-reliant folks who are too proud to accept relief, however.

—Poultry Item, June-July, 1939.

## Why Import Eggs?

The war in China has so reduced the imports of eggs into the United States that far more of our own eggs are being broken out. The increased use of American eggs in this way is helping materially to support demand and move eggs into consumption at favorable prices. Curtailing of imports of Chinese eggs has helped American egg producers without noticeably affecting the pocket books of consumers.

The American poultry industry has striven for decades to have enacted import duties or taxes that would prevent the importation of egg products. Greater pressure than ever is being brought to bear on the present Congress to have Congressman Lea's excise bill favorably acted upon. American poultrymen feel that they should not have to pay high labor costs for what they buy and sell their eggs in competition with imported egg products produced by cheap coolie labor. Yet imports will undoubtedly be resumed when the present labor troubles in China are ended—unless present tariff barriers are raised.

—Nulaid News, May, 1939.

## What's Wrong with Parcel Post?

An unusual number of complaints have been heard this season about poor service on Parcel Post deliveries of baby chicks. One of the commonest complaints is about divided deliveries, with part of a shipment arriving on time, and the balance being delayed, often times as much as a day.

In several cases reported, these split deliveries have been experienced on shipments of only three or four hundred chicks going to small towns where mail is delivered only once or twice per day, and the split delivery has resulted in very serious damage to the chicks in the delayed packages.

A well known poultry department head from an eastern agricultural college told at the recent Cleveland Poultry Congress Conference of seeing a large lot of chicks being transfered at Trenton, New Jersey, and stated that many of the boxes were standing on end on the mail truck.

One hatcheryman, who has been making a large volume of parcel post shipments for the last ten years, reports that he has had more complaints on poor delivery of chicks this year, than in all the preceeding years he has been in business.

Hatcherymen are required to pay a "Special Handling" charge on each bundle of chicks, and it would seem that this fee should entitle chicks to at least reasonably careful attention.

Local postmasters, especially in the smaller towns, are generally interested in seeing that the chicks are started out in good shape, because the chick shipments, and the advertising material sent out by mail order hatcheries mean quite a lot in postal receipts.

The blame for split shipments probably rests on transfer clerks at terminal points, or on failure of the railway mail clerks to unload the complete shipment at the point of destination.

It is possible that limited facilities for hauling mail, with the reduced train schedules now in effect, may explain much of the poor service being reported this year. However, it seems only fair that if hatcherymen are required to pay for "Special Handling" that they should be entitled to a hearing on the kind of service being rendered by the Post Office Department.

—Smith's Chickagrams, June, 1939.

# POULTRY STATISTICS

## Hens on Farms — Rate of Lay

Number of Hens Per Flock, and of Eggs Laid Per Hen and Per Flock, First Day of Month

| Geographic Division | Layers per flock | | | Eggs per 100 layers | | | Eggs per flock | | |
|---|---|---|---|---|---|---|---|---|---|
| | Jan. 1 | May 1 | June 1 | May 1 | June 1 | Aggregate Jan.-June | May 1 | June 1 | Aggregate Jan.-June |
| North Atl. | | | | | | | | | |
| 1928-37 (Av.) | 96.9 | 85.8 | 82.4 | 59.1 | 54.6 | 266 | 50.5 | 45.0 | 236 |
| 1938 | 96.7 | 85.3 | 81.7 | 61.1 | 56.1 | 294 | 52.1 | 45.6 | 264 |
| 1939 | 98.4 | 84.2 | 80.5 | 60.0 | 52.8 | 290 | 50.2 | 42.5 | 258 |
| North Cent. | | | | | | | | | |
| 1928-37 (Av.) | 115.7 | 103.6 | 96.9 | 56.6 | 51.1 | 232 | 58.8 | 49.6 | 248 |
| 1938 | 102.4 | 91.6 | 85.9 | 59.4 | 54.3 | 261 | 54.4 | 46.9 | 251 |
| 1939 | 110.4 | 98.3 | 91.8 | 58.9 | 53.8 | 259 | 57.9 | 49.5 | 266 |
| South Atl. | | | | | | | | | |
| 1928-37 (Av.) | 60.1 | 51.4 | 49.2 | 51.1 | 45.8 | 238 | 25.9 | 22.2 | 129 |
| 1938 | 55.8 | 48.0 | 46.3 | 53.8 | 48.7 | 265 | 25.3 | 22.2 | 136 |
| 1939 | 59.9 | 49.4 | 47.7 | 53.8 | 49.0 | 264 | 26.2 | 23.0 | 139 |
| South Cent. | | | | | | | | | |
| 1928-37 (Av.) | 66.8 | 55.6 | 52.5 | 51.2 | 45.0 | 232 | 28.4 | 23.6 | 138 |
| 1938 | 59.3 | 51.7 | 49.1 | 54.3 | 48.3 | 258 | 27.8 | 23.5 | 142 |
| 1939 | 63.6 | 55.2 | 52.7 | 53.9 | 47.8 | 254 | 29.6 | 25.2 | 148 |
| Western | | | | | | | | | |
| 1928-37 (Av.) | 74.0 | 67.0 | 64.1 | 59.0 | 54.3 | 267 | 39.6 | 35.0 | 182 |
| 1938 | 71.1 | 64.4 | 62.1 | 59.6 | 54.7 | 277 | 38.5 | 34.2 | 184 |
| 1939 | 72.6 | 62.9 | 60.3 | 58.9 | 53.6 | 280 | 37.4 | 32.6 | 184 |
| United States | | | | | | | | | |
| 1928-37 (Av.) | 86.0 | 75.1 | 70.9 | 55.5 | 50.1 | 239 | 41.3 | 35.1 | 186 |
| 1938 | 77.6 | 68.6 | 65.0 | 58.1 | 52.9 | 266 | 39.4 | 34.0 | 192 |
| 1939 | 82.8 | 72.2 | 68.3 | 57.6 | 52.1 | 264 | 41.1 | 35.2 | 199 |

About 3 per cent more young chickens than last year were reported on hand in farm flocks on June 1 this year, indicating larger laying flocks for next season. A continued high rate of laying in most areas is holding egg production above the 10-year average although flocks are smaller than average. While heavy production resulted in much lower egg prices, the May price of feed was higher. This much less favorable relationship of poultry and eggs to feed prices seems to be restricting somewhat the gain indicated earlier in the farm holdings of young chickens notwithstanding the very heavy purchases of hatchery chicks. As a result, the gain in number of layers for next season will probably be less than expected earlier. The carry-over of layers will depend to a considerable extent, however, on the outcome of this year's crops.

The seasonal decline in the number of hens and pullets of laying age in farm flocks this year has been about average. The average number of layers on June 1 was 68.3 compared with 65.0 a year ago and the 10-year (1928-37) average of 70.9. Compared with a year ago, increases were shown in all geographic areas with the exception of the North Atlantic and Western States where there were small decreases. In the West North Central States the increase was about 11 per cent, in the South Central States about 7 per cent, in the South Atlantic States 3 per cent and in the East North Central States about 2 per cent. In the intensive commercial areas of the North Atlantic and Far Western States, the decreases were about 1 and 3 per cent respectively. Numbers of layers were below the 10-year average in all geographic areas except the South Central where they were slightly above average.

Although the rate of laying was below that of the past two years, it exceeded the June 1 figures of all other years in the 15-year series, and was 4 per cent above the 10-year June 1 average. The average number of eggs laid on June 1 per 100 layers in farm flocks was 52.1 compared with 52.9 a year ago and the 10-year average of 50.1. The aggregate laying per 100 layers indicated by the six monthly layings, January to June, is about 1 per cent smaller than for the same months in 1938, but it is more than 10 per cent above the 10-year average.

The rate of laying continued high in all of the geographic areas with the exception of the North Atlantic and Western States where it was below the 10-year average by 3 and 1 per cent respectively. In all other areas it at least exceeded all except the past two years and in the South Atlantic area it set a new record high for June.

Egg production on June 1, as indicated by the average production per farm flock, was about 4 per cent larger than the production of a year ago and a fraction of 1 per cent above the 10-year average. Compared with a year ago there was an increase of about 9 per cent in the West North Central States, about 7 per cent in the South Central States, about 4 per cent in the South Atlantic States and about 2 per cent in the East North Central States. Decreases of about 7 and 5 per cent occurred in the North Atlantic and Western States respectively.

The average number of young chickens of this year's hatching on hand on June 1 was reported at 135.2 compared with 131.7 a year ago and the 10-year average of 131.5. Although the number of young chickens on farms April 1 of this year was the largest for that date since 1927, or about 31 per cent above the 10-year average, additions during April were only 4 per cent above average and during May were about 19 per cent below average. Young chickens on June 1 indicated a gain of less than 3 per cent, compared with a year earlier, while May and April numbers indicated increases of 5 and 4 per cent, respectively. Lower chicken and egg prices than a year ago and a less favorable feed-egg price relationship than existed during the first four months of the year may be responsible for the smaller hatching during May. —Comment from Poultry and Egg Production Report.

## Egg Prices

June egg markets have been notably steady and prices throughout the month showed but little change. Continued daily purchases on the New York and Chicago Mercantile Exchanges by the Federal Surplus Commodities Corporation has furnished support to offset any declines which might have otherwise occurred. The rate of storing during the month has not equalled that of last year, but is about average.

### 1939 Egg Prices at New York City

| Kind | June 2 | June 9 | June 16 | June 23 | June 30 | June 30, '38 |
|---|---|---|---|---|---|---|
| Mixed Color Firsts | 16¼ | 16¼ | 16¼ | 16 | 16 | 20¼ |
| Nearby and Midwestern White Premium Marks | 21½-23 | 20½-22 | 21½-23 | 23½-25 | 24½-26 | 27¼-29 |
| Nearby and Midwestern White Specials | 20 -21 | 20 | 20½-21 | 23 | 24 | 25 -27 |
| Pacific Coast Specials | 26½-27 | 26½-27 | 26½-27¾ | 26¾-28¼ | 28 -28½ | 29½-30 |
| Nearby and Western Brown Exchange Specials | 19 | 20 | 21 | 21 | 22 | 25 -25½ |

The purchase program of the Federal Surplus Commodities Corporation began during the latter part of May, and was at first confined to New York, with approximately 6,000 cases taken there up to June 1. First purchases at Chicago were made on June 3, and sizable quantities have been bought daily. June purchases alone were approximately 100,000 cases, two-thirds of which were bought at New York. These eggs are going into relief distribution through State agencies.

An unusually steady price trend prevailed in the egg markets during June. Relatively little change occurred, except on the best grades, which showed slight advances. At New York, Mixed Colored Firsts were quoted at 15¾-16¼ cents on June 1, but held at 16¼ cents the rest of the month up to June 23, since which time 16 cents was top for that grade. Nearby eggs of higher qualities, however, were about 2 cents higher in late June than early in the month, and Pacific Coast eggs were higher on some grades. In the Pacific Coast markets proper, prices strengthened during the last half of the month and are up about a cent over a month ago, except at Seattle where no change has occurred. In general, prices are averaging 3 to 4 cents below a year ago at this period.

—Comment from Monthly Egg and Poultry Markets Review.

### Farm Prices of Eggs per Dozen

(Figures given in cents)

| Year | Jan. 15 | Mar. 15 | Apr. 15 | May 15 | June. 15 | July 15 | Aug. 15 | Sept. 15 | Nov. 15 |
|---|---|---|---|---|---|---|---|---|---|
| Average 1928-37 | 25.9 | 18.0 | 17.4 | 17.5 | 17.4 | 18.7 | 20.6 | 23.9 | 31.1 |
| 1937 | 23.1 | 19.9 | 20.1 | 17.9 | 17.6 | 19.4 | 20.4 | 22.9 | 28.0 |
| 1938 | 21.6 | 16.2 | 15.9 | 17.6 | 18.2 | 19.9 | 21.0 | 24.9 | 29.0 |
| 1939 | 18.8 | 16.0 | 15.5 | 15.2 | 14.9 | | | | |

## Poultry Meat Prices

### Farm Prices of Chickens per Pound

(Figures given in cents)

| Year | Jan. 15 | Mar. 15 | Apr. 15 | May 15 | June. 15 | July 15 | Aug. 15 | Sept. 15 | Nov. 15 |
|---|---|---|---|---|---|---|---|---|---|
| Average 1928-37 | 15.1 | 15.7 | 16.4 | 16.3 | 16.1 | 15.8 | 15.7 | 16.0 | 14.9 |
| 1937 | 13.4 | 14.4 | 15.2 | 14.8 | 14.8 | 15.3 | 16.8 | 17.4 | 16.9 |
| 1938 | 16.7 | 15.9 | 16.2 | 16.1 | 15.7 | 15.0 | 14.2 | 14.3 | 13.6 |
| 1939 | 14.0 | 14.3 | 14.4 | 13.9 | 13.4 | | | | |

## Receipts of Eggs and Poultry

### Receipts of Eggs (Cases) at 4 Markets*

| Geographic sections | May 1939 | May 1938 | May % change | Jun. to May, Inc. 1939 | Jun. to May, Inc. 1938 | Jun. to May, Inc. % change |
|---|---|---|---|---|---|---|
| New England | 35,496 | 28,025 | + 26.7 | 186,691 | 145,973 | + 27.9 |
| Middle Atlantic | 249,517 | 180,756 | + 38.0 | 1,008,607 | 845,988 | + 19.2 |
| South Atlantic | 39,098 | 31,229 | + 25.2 | 172,388 | 157,624 | + 9.4 |
| East North Central | 477,350 | 427,146 | + 11.8 | 1,652,096 | 1,528,785 | + 8.1 |
| West North Central | 1,368,794 | 1,073,077 | + 27.6 | 4,345,389 | 3,730,617 | + 16.5 |
| South Central | 6,206 | 13,791 | − 55.0 | 50,957 | 83,434 | − 38.9 |
| Mountain | 36,738 | 36,149 | + 1.6 | 131,182 | 241,375 | − 45.7 |
| Pacific | 17,248 | 51,274 | − 66.4 | 110,815 | 308,572 | − 64.1 |
| Miscellaneous | 655 | 669 | − 2.1 | 2,750 | 3,001 | − 8.4 |
| TOTAL | 2,231,102 | 1,842,116 | + 21.1 | 7,660,875 | 7,045,369 | + 8.7 |

### Receipts of Dressed Poultry (pounds) at 4 Markets*

| Geographic sections | May 1939 | May 1938 | May % change | Jun. to May, Inc. 1939 | Jun. to May, Inc. 1938 | Jun. to May, Inc. % change |
|---|---|---|---|---|---|---|
| New England | 1,761,309 | 1,513,193 | + 16.4 | 3,830,118 | 3,743,214 | + 2.3 |
| Middle Atlantic | 5,323,218 | 4,436,988 | + 20.0 | 10,669,023 | 9,317,786 | + 14.5 |
| South Atlantic | 1,921,474 | 552,119 | +248.0 | 6,998,732 | 3,018,237 | +131.9 |
| East North Central | 2,660,874 | 2,060,945 | + 29.1 | 14,839,209 | 9,072,008 | + 63.6 |
| West North Central | 8,072,382 | 6,374,916 | + 26.6 | 42,379,352 | 30,432,056 | + 39.3 |
| South Central | 2,470,105 | 2,134,037 | + 15.8 | 10,143,731 | 11,056,183 | − 8.3 |
| Mountain | 209,551 | 94,585 | +121.6 | 1,775,961 | 1,308,467 | + 35.7 |
| Pacific | 1,200,328 | 1,475,940 | − 18.7 | 3,390,618 | 5,645,123 | − 39.9 |
| Miscellaneous | — | — | — | — | — | — |
| TOTAL | 23,619,241 | 18,642,723 | + 26.7 | 94,026,744 | 73,593,074 | + 27.8 |

*New York, Chicago, Philadelphia, and Boston.

Receipts of eggs during June at 4 markets, New York, Chicago, Philadelphia, and Boston, were heavier than last year, but this is due entirely to the Chicago increase, for at the other markets, they were below those of June 1938. The June 1 report of egg production indicates increases in all geographic areas except the North Atlantic and Western States. Decreases in the latter areas would have an effect on arrivals at Atlantic Seaboard markets. At New York City receipts from the three Pacific Coast States are very much lighter this year than last. They totaled only about 45,000 cases during the months of March, April, and May, compared with 144,000 cases in these months last year. Weekly deliveries to primary markets in the Pacific Coast States, which have been under those of a year earlier since the latter part of 1937, were about 10 per cent lower in June. Seasonal reductions began this year about May 1. The seasonal drop at Central Western primary markets also began at the same time, although in this area, there are continued weekly increases over last year, the June increases averaging about 15 per cent.

### Receipts of Eggs at Eastern Egg Auctions

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| June 3 | 25 | 29,323 | −6.00 | +31.87 |
| June 10 | 26 | 29,985 | −0.23 | +33.65 |
| June 17 | 26 | 27,359 | −9.33 | +25.70 |
| June 24 | 26 | 24,047 | −7.19 | +20.45 |

### Receipts of Eggs at Pacific Coast Primary Markets

| Week Ending | No. of Plants | Cases of Eggs 1939 | Cases of Eggs 1938 | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| June 3 | 62 | 65,039 | 72,613 | –4.07 | –10.43 |
| June 10 | 63 | 64,236 | 70,866 | –1.70 | –9.36 |
| June 17 | 63 | 61,376 | 68,387 | –4.45 | –10.25 |
| June 24 | 62 | 58,434 | 66,875 | –4.70 | –12.62 |

### Receipts of Eggs and Poultry at Central Western Primary Markets

| Week Ending | Cases of Eggs | | | Pounds of Poultry (000 omitted) | | | Pounds of Young Stock (000 omitted) | | | Pounds of Fowl (000 omitted) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1939 | 1938 | % Chg. | 1939 | 1938 | % Chg. | 1939 | 1938 | % Chg. | 1939 | 1938 | % Chg. |
| June 3 | 199,527 | 167,325 | +19.25 | 3,093 | 2,657 | +16.42 | No figures available. | | | 2,466 | 1,939 | +27.19 |
| June 10 | 178,756 | 160,669 | +11.26 | 3,354 | 3,030 | +10.71 | | | | 2,633 | 2,158 | +22.01 |
| June 17 | 167,127 | 145,550 | +14.82 | 3,336 | 2,979 | +11.98 | 491 | 576 | –14.85 | 2,496 | 2,141 | +16.57 |
| June 24 | 148,110 | 129,703 | +14.19 | 3,113 | 3,083 | + 0.99 | 598 | 820 | –27.09 | 2,269 | 2,023 | +12.15 |

Live poultry markets have been steady to firm during June, with prices generally trending slightly upward, and at a level some 2 to 3 cents under a year ago. Receipts have been heavier than a year ago—fully a 20 per cent increase at Chicago, although such an increase is not apparent at New York. Increased receipts at Central Western country packing plants during the first half of the month as compared with a year earlier equalled the Chicago increase, but since then the increase has been less, amounting to but 1 per cent during the week ending June 24. Packing plant receipts show seasonal decreases since the middle of the month. The last weekly report contained information on young stock for the first time this season, and indicates a decrease of 27 per cent in the quantity marketed as compared with the corresponding week of last year. This is of interest when considered along with the June 1 report of more young chickens in farm flocks. Of further interest in this connection, is the report of hatchery operations which indicates a 14 per cent increase in eggs set during May, although the report states that hatchery operations are apparently slowing down faster this year than in 1938 except on the Pacific Coast.

—Comment from Monthly Egg and Poultry Markets Review.

## Egg-Feed Ratios

### New York Egg-Feed Ratio

| Week Ending | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration | | | Avg. Egg Price per Doz. (Dollars) | | | Avg. Feed Cost per 100 lbs. (Dollars) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1939 | 1938 | 1937 | 1939 | 1938 | 1937 | 1939 | 1938 | 1937 |
| June 1 | 9.7 | 7.3 | 11.7 | .18 | .235 | .227 | 1.77 | 1.71 | 2.66 |
| June 8 | 9.9 | 7.4 | 11.8 | .18 | .226 | .218 | 1.79 | 1.69 | 2.58 |
| June 15 | 9.6 | 7.6 | 11.8 | .182 | .223 | .218 | 1.75 | 1.71 | 2.58 |
| June 22 | 9.4 | 7.4 | 11.0 | .184 | .232 | .226 | 1.73 | 1.72 | 2.49 |
| June 29 | 8.8 | 7.2 | 10.1 | .195 | .236 | .248 | 1.72 | 1.72 | 2.51 |

### Chicago Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration | | | Price of Fresh Graded Firsts (Dollars) | | Cost of Ration per 100 lbs. (Dollars) | |
|---|---|---|---|---|---|---|---|
| | 1939 | 1938 | 10-Yr. Av. 1929-38 | 1939 | 1938 | 1939 | 1938 |
| June 3 | 7.45 | 5.44 | 6.90 | .146 | .191 | 1.091 | 1.039 |
| June 10 | 7.14 | 5.57 | 6.74 | .151 | .192 | 1.080 | 1.070 |
| June 17 | 6.90 | 5.73 | 6.67 | .152 | .197 | 1.053 | 1.100 |
| June 24 | 6.78 | 5.56 | 6.71 | .152 | .198 | 1.034 | 1.103 |

## Egg and Poultry Exports and Imports

### Exports of Eggs and Poultry

| Commodity | | May 1939 | May 1938 | Jan. to May, Inc. 1939 | Jan. to May, Inc. 1938 |
|---|---|---|---|---|---|
| Eggs in shell | (doz.) | 141,358 | 133,698 | 1,057,568 | 959,363 |
| Eggs and yolks, frozen, dried, or canned | (lbs.) | Not available | Not available | Not available | Not available |
| Live poultry | (lbs.) | 30,457 | 6,316 | 102,421 | 36,169 |
| Dressed poultry | (lbs.) | 168,152 | 111,722 | 795,445 | 610,838 |

### Imports of Eggs and Poultry

| Commodity | | May 1939 | May 1938 | Jan. to May, Inc. 1939 | Jan. to May, Inc. 1938 |
|---|---|---|---|---|---|
| Eggs in shell | (doz.) | 26,200 | 14,569 | 149,414 | 88,304 |
| Whole eggs, dried | (lbs.) | 5,000 | 7,500 | 32,000 | 120,350 |
| Whole eggs, frozen | (lbs.) | 0 | 395 | 420 | 602 |
| Yolks, dried | (lbs.) | 1,000 | 0 | 44,525 | 171,305 |
| Yolks, frozen | (lbs.) | 14,100 | 21,000 | 25,330 | 308,050 |
| Egg albumen, dried | (lbs.) | 29,800 | 31,800 | 279,983 | 302,774 |
| Egg albumen, frozen | (lbs.) | 0 | 0 | 0 | 30 |
| Live poultry | (lbs.) | 75,636 | 74,697 | 305,498 | 722,578 |
| Dressed poultry | (lbs.) | 18,447 | 103,250 | 110,369 | 291,323 |
| Poultry, prepared | (lbs.) | 167,438 | 18,098 | 521,655 | 309,728 |

## Eggs in Storage

### Storage Holdings of Eggs

| Kind | June 1 5-Year Avg. 1934-38 | June 1 1938 | May 1 1939 | June 1 1939 | % Change June '38-June '39 |
|---|---|---|---|---|---|
| | | (Thousands) | | | |
| Shell Eggs (cases) | 6,458 | 5,100 | 3,357 | 5,886 | +15.4 |
| Frozen Eggs (lbs.) | 107,329 | 130,872 | 88,867 | 117,985 | – 9.8 |
| Frozen Case Equivalent (cases)* | 3,067 | 3,739 | 2,539 | 3,371 | – 9.8 |
| Total (cases) | 9,525 | 8,839 | 6,515 | 9,257 | + 4.7 |

* Frozen eggs are converted on the basis of 35 lbs. to the case.

Storing of eggs since June 1 has been about average for this season of the year, but below last year insofar as the current month's net increases are concerned. Total stocks on July 1 last year, however, were the lowest of record for that date. Commercially owned stocks in the principal Eastern terminal markets are about the same as a year ago, but on the Pacific Coast they are over 60 per cent heavier. Included in reported stocks at New York at the close of June are approximately 26,000 cases which have been bought by the Federal Surplus Commodities Corporation for relief distribution, and which will not enter usual trade channels. Stocks reported in the 35 cities as of June 24 were 5,187,000 cases. Storing during the last week of the month apparently has not equalled the preceding weekly average increases of 236,000 cases. The 35 cities held 74 per cent of total U. S. stocks on June 1. Should this percentage be maintained, total U. S. stocks on July 1 may approximate a million cases more than on July 1, 1938.

Increases in frozen egg stocks in the 35 cities during June have been almost double that of last year during the corresponding period. The total in these markets on June 24 was only about 2 million pounds under last year, compared with a shortage of almost 9 million pounds shown on the weekly report for May 27. Thus, there is a possibility that the July 1 total U. S. stocks may be heavier than a year earlier, rather than lighter as was the case on June 1. Production of liquid eggs in May this year was 47 per cent greater than in May 1938.

—Comment from Monthly Egg and Poultry Markets Review.

## Poultry in Storage

**Storage Holdings of Frozen Poultry**

| Kind | June 1 5-Year Avg. 1934-38 | June 1 1938 | May 1 1939 | June 1 1939 | % Change June '38-June '39 |
|---|---|---|---|---|---|
| | | (Thousand Pounds) | | | |
| Broilers | 4,975 | 4,258 | 5,779 | 6,241 | +46.5 |
| Fryers | 3,681 | 3,766 | 6,586 | 4,892 | +29.8 |
| Roasters | 10,438 | 8,826 | 15,513 | 11,398 | +29.1 |
| Fowls | 7,232 | 9,024 | 10,907 | 11,966 | +32.6 |
| Turkeys | 14,833 | 12,926 | 17,832 | 17,415 | +34.7 |
| Ducks | 1,831 | 3,143 | 1,090 | 1,996 | −36.4 |
| Miscellaneous | 9,887 | 10,106 | 12,861 | 12,890 | +27.5 |
| Total | 52,877 | 52,049 | 70,568 | 66,798 | +28.3 |

The market on dressed poultry has been steady to firm during the month, with prices at New York and Chicago slightly advanced on practically all classes over what they were a month ago. Receipts of dressed poultry at the 4 markets during May were 27 per cent heavier than in May 1939, with about the same percentage increase for the calendar year to June 1. June receipts show a continuation of this rate of increase. This is the season of the year when the net storage movement may be either in or out, for during the past 10 years the June change has been an increase five times and a decrease five times. Increases occurred in 1929, 1933, 1934, 1936 and 1938. This year's change will also be an increase, probably around 4 million pounds, which in view of previous years is rather sizable. The 1934-38 average change during June was a reduction of 600,000 pounds.

—Comment from Monthly Egg and Poultry Markets Review.

## Hatchery Operations

**Eggs Set, Chicks Hatched, and Chicks Booked by Commercial Hatcheries**

| Geographic Section | No. of plants | Eggs Set During May 1939 | Eggs Set During May 1938 | Eggs Set During May % chg. | Salable Chicks Hatched During May 1939 | Salable Chicks Hatched During May 1938 | Salable Chicks Hatched During May % chg. | Chicks Booked June 1 for June or Later Delivery No. of plants | Chicks Booked 1939 | Chicks Booked 1938 | Chicks Booked % chg. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Thousands | | | Thousands | | | | Thousands | | |
| N. Eng. | 20 | 1,244 | 1,272 | − 2 | 1,245 | 1,075 | +16 | 14 | 830 | 1,672 | −50 |
| Mid. Atl. | 47 | 2,253 | 1,512 | +49 | 2,303 | 1,804 | +28 | 34 | 301 | 318 | − 5 |
| S. Atl. | 28 | 969 | 757 | +28 | 954 | 847 | +13 | 15 | 368 | 280 | +31 |
| E. N. Cent. | 111 | 5,583 | 4,854 | +15 | 6,109 | 5,058 | +21 | 73 | 701 | 732 | − 4 |
| W. N. Cent. | 102 | 8,907 | 8,444 | + 5 | 10,239 | 8,636 | +19 | 80 | 1,283 | 928 | +38 |
| S. Cent. | 30 | 971 | 947 | + 3 | 1,121 | 1,056 | + 6 | 12 | 29 | 42 | −31 |
| Mountain | 16 | 493 | 443 | +11 | 530 | 418 | +27 | 11 | 34 | 34 | — |
| Pacific | 46 | 1,396 | 976 | +43 | 1,724 | 1,046 | +65 | 26 | 640 | 630 | + 2 |
| U. S. | 400 | 21,816 | 19,205 | +14 | 24,225 | 19,940 | +21 | 265 | 4,186 | 4,636 | −10 |
| Jan.-May Inc. | | 145,671 | 122,523 | +19 | 95,994 | 78,436 | +22 | | 73,206 | 60,181 | +22 |

## Egg Breaking Operations

**Egg Breaking Operations During May, 1939**

| Commodity | Quantities reported to date for May 1939 | Same firm comparison May, 1939 | Same firm comparison May, 1938 | % change in 1939 |
|---|---|---|---|---|
| | Pounds | Pounds | | |
| Whole eggs (nothing added) | 8,948,513 | 8,398,513 | 5,894,198 | + 42 |
| Mixed eggs (plain) | 821,895 | 821,895 | 751,670 | + 9 |
| Mixed eggs (emulsions, also with sugar, salt, etc.) | 4,600,027 | 4,600,027 | 4,743,461 | − 3 |
| Egg whites (all descriptions) | 13,496,714 | 13,039,714 | 7,977,495 | + 63 |
| Egg yolks packed: Without salt, sugar, etc. | 4,969,871 | 4,819,871 | 2,419,791 | + 99 |
| Egg yolks packed: With sugar | 4,087,675 | 3,837,675 | 1,841,061 | +108 |
| Egg yolks packed: With salt | 2,184,180 | 2,184,180 | 2,009,014 | + 9 |
| Egg yolks packed: All yolk emulsions, including glycerine | 120,870 | 120,870 | 95,400 | + 27 |
| Total—pounds | 39,229,745 | 37,822,745 | 25,732,090 | + 47 |
| Total—case egg equivalent | 1,120,850 | 1,080,650 | 735,203 | |
| Number of firms reporting | 62 | 61 | 61 | |

## Poultry Canning Operations

**Poultry Canning Operations During May, 1939**

| Commodity | Quantities reported to date for May 1939 | Quantities reported for April 1939 | Same firm comparison May 1939 | Same firm comparison May 1938 | % change in 1939 |
|---|---|---|---|---|---|
| | Pounds | Pounds | Pounds | | |
| Dressed poultry canned or used in canning | 3,513,086 | 2,752,972 | 3,513,086 | 2,840,143 | +24 |
| Number of firms reporting | 21 | 22 | 21 | 21 | |

# RESULTS OF LAYING TESTS

Seventy-five points ahead of their nearest competitor through the last of May, Kauder's Pedigreed Leghorns hold a strong advantage as they enter the ninth month of the present test year. A. E. Guinn's Leghorn hen at Georgia also is clinging to its lead over the 14,819 other birds that started in the 16 standard laying tests last October.

Kauder's pen at Storrs topped all other pens during the month in point score with a total of 385.55 points from 352 eggs. Dryden's Leghorns at Michigan were only two points behind, and laid five more eggs than Kauder's fast-steppers. White Leghorns from Schwegler's Hatchery, entered at Western New York, were a close third.

John A. Clear's Leghorns have jumped into second place in the breed, with Guy Leader's Pennsylvania pen in hot pursuit. Four Texas pens are next in order. Southern tests have the edge in the number of leading Leghorn pens to June 1.

Thomas Mettler's Reds at Hunterdon, N. J., are shelling out the eggs at a steady rate and have maintained their leading position in the Red breed. Ford's Riverbank Farm's birds at Maine lost a little ground during May, but still are firmly entrenched in second place.

Hubbard Farms' New Hampshires advanced with a spurt during May, are now only 26 points behind A. J. Williams' birds at Florida that have dominated in this breed for so long. E. N. Larrabee's pen at Storrs also is pressing forward in double-quick time and is moving into a position where it may overtake the leaders.

Dryden's Barred Rocks have a three-way grip on the top positions in their breed, and a fourth Dryden pen is in sixth place.

Homestead Farm White Rocks continue to edge up on Holtzapple's birds at Georgia, and are now only 22 points out of first place.

## Twenty Highest Pens, All Breeds, to June 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 2605 | 2805.00 | Storrs |
| Thomas Mettler | Rhode Island Red | 2688 | 2730.65 | Hunterdon, N. J. |
| Ford's Riverbank Farm | Rhode Island Red | 2600 | 2612.75 | Maine |
| John A. Clear | White Leghorn | 2418 | 2573.55 | Hunterdon, N. J. |
| Guy A. Leader | White Leghorn | 2483 | 2563.15 | Pennsylvania |
| Sand Springs Home Farm | White Leghorn | 2407 | 2542.05 | Texas |
| Nelson's Leghorn Breeding Farm | White Leg. | 2388 | 2541.80 | Texas |
| Ralph W. Anderson | Rhode Island Red | 2351 | 2520.35 | Storrs |
| D. I. Goodenough | Rhode Island Red | 2353 | 2504.95 | Storrs |
| Vans R. Otey | Rhode Island Red | 2405 | 2504.30 | Florida |
| Woodlawn Farm | White Leghorn | 2335 | 2502.00 | Texas |
| J. J. Warren | Rhode Island Red | 2371 | 2494.15 | Storrs |
| A. J. Williams | New Hampshire | 2436 | 2493.75 | Florida |
| J. J. Warren | Rhode Island Red | 2328 | 2492.25 | Rhode Island |
| Woodlawn Farm | White Leghorn | 2382 | 2490.20 | Texas |
| Kauder's Pedigreed Leghorns | White Leghorn | 2367 | 2490.00 | Georgia |
| Dryden Poultry Breeding Farm | White Leghorn | 2376 | 2476.15 | Michigan |
| Booth Farms and Hatchery | White Leghorn | 2304 | 2471.65 | Oklahoma |
| Booth Farms and Hatchery | White Leghorn | 2372 | 2471.50 | Florida |
| Hubbard Farms | New Hampshire | 2393 | 2467.55 | Storrs |

## High Pen in Each Standard Test for May

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 352 | 385.55 | Storrs |
| Dryden Poultry Breeding Farm | White Leghorn | 357 | 383.15 | Michigan |
| Schwegler's Hatchery | White Leghorn | 358 | 378.40 | Western New York |
| R. O. Wagemaker | Rhode Island Red | 336 | 366.45 | Missouri |
| Dryden Poultry Breeding Farm | White Leghorn | 339 | 365.40 | Central New York |
| W. C. Mullins | Rhode Island Red | 337 | 364.50 | Texas |
| Bryan J. Snell | White Leghorn | 330 | 361.10 | Pennsylvania |
| Thomas Mettler | Rhode Island Red | 343 | 354.80 | Hunterdon, N. J. |
| Sponenbergh Poultry Farm | White Leghorn | 322 | 340.35 | Passaic, N. J. |
| Lone Oak Leghorn Farm | White Leghorn | 325 | 340.00 | Florida |
| J. J. Warren | Rhode Island Red | 306 | 332.50 | Rhode Island |
| Ford's Riverbank Farm | Rhode Island Red | 315 | 331.70 | Maine |
| R. O. Wagemaker | Rhode Island Red | 324 | 330.65 | New York State |
| Hollywood Poultry Farm | White Leghorn | 310 | 322.00 | Georgia |
| J. A. Hanson | White Leghorn | 313 | 320.30 | Arizona |
| Riley Poultry Farm | White Rock | 302 | 308.20 | Oklahoma |

## High Pen in Each Breed to June 1 — (243 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 2605 | 2805.00 | Storrs |
| Thomas Mettler | Rhode Island Red | 2688 | 2730.65 | Hunterdon, N. J. |
| A. J. Williams | New Hampshire | 2436 | 2493.75 | Florida |
| Dryden Poultry Breeding Farm | Barred Rock | 2354 | 2360.40 | Pennsylvania |
| Lonnie Van Sant | Black Australorp | 2152 | 2280.15 | Arizona |
| Oscar W. Holtzapple | White Rock | 2145 | 2193.30 | Georgia |
| Colonial Poultry Farm | White Wyandotte | 2019 | 2118.35 | Texas |
| Ben G. Munroe | Ancona | 1925 | 1977.60 | Texas |
| Colonial Poultry Farm | White Minorca | 1673 | 1750.60 | Georgia |
| Harry L. Phillips | Columbian Rock | 1663 | 1736.70 | Missouri |
| S. E. Raymond | Lamona | 1600 | 1703.40 | Storrs |
| Lindstrom Poultry Farm | Buff Minorca | 1612 | 1636.30 | Missouri |
| Raymond Murphy | White Giant | 1503 | 1610.05 | Missouri |
| Donald C. Chandler | Silver Laced Wyandotte | 1605 | 1585.45 | Maine |
| Wm. W. Lehman | Buff Leghorn | 1478 | 1487.10 | Pennsylvania |
| Laclede Hatchery | Buff Orpington | 1383 | 1353.00 | Florida |
| Blue Ribbon Farms | Rhode Island White | 1270 | 1295.30 | Texas |
| Cedarlaid Poultry Farm | Brown Leghorn | 1476 | 1292.10 | Florida |
| Hall Bros. Hatchery | Cross | 1219 | 1265.80 | New York State |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 1126 | 1184.50 | Maine |

## High Pen in Each Standard Test to June 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 2605 | 2805.00 | Storrs |
| Thomas Mettler | Rhode Island Red | 2688 | 2730.65 | Hunterdon, N. J. |
| Ford's Riverbank Farm | Rhode Island Red | 2600 | 2612.75 | Maine |
| Guy A. Leader | White Leghorn | 2483 | 2563.15 | Pennsylvania |
| Sand Springs Home Farm | White Leghorn | 2407 | 2542.05 | Texas |
| Vans R. Otey | Rhode Island Red | 2405 | 2504.30 | Florida |
| J. J. Warren | Rhode Island Red | 2328 | 2492.25 | Rhode Island |
| Kauder's Pedigreed Leghorns | White Leghorn | 2367 | 2490.00 | Georgia |
| Dryden Poultry Breeding Farm | White Leghorn | 2376 | 2476.15 | Michigan |
| Booth Farms and Hatchery | White Leghorn | 2304 | 2471.65 | Oklahoma |
| R. O. Wagemaker | Rhode Island Red | 2258 | 2430.45 | Missouri |
| Content Farms | White Leghorn | 2324 | 2394.95 | Central New York |
| George A. Pearce | Rhode Island Red | 2378 | 2383.50 | Passaic, N. J. |
| Del Rio Farm | New Hampshire | 2171 | 2299.35 | Arizona |
| J. J. Warren | Rhode Island Red | 2191 | 2272.40 | New York State |
| E. B. Parmenter | Rhode Island Red | 2151 | 2228.65 | Western New York |

## High Hen in Each Standard Test for May

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Booth Farms and Hatchery | White Leghorn | 31 | 34.10 | Missouri |
| R. R. Parks | Barred Rock | 31 | 34.10 | Pennsylvania |
| Hank's Hennery | New Hampshire | 31 | 34.10 | Western New York |
| Hillview Poultry Farm | White Leghorn | 31 | 34.10 | Texas |
| Dryden Poultry Breeding Farm | White Leghorn | 31 | 34.10 | Central New York |
| Lindstrom Poultry Farm | Rhode Island Red | 31 | 34.10 | Oklahoma |
| Kauder's Pedigreed Leghorns | White Leghorn | 31 | 34.05 | Storrs |
| Ford's Riverbank Farm | Rhode Island Red | 31 | 33.90 | Michigan |
| J. J. Warren | Rhode Island Red | 31 | 33.90 | Rhode Island |
| Pine Mountain Valley Farm | New Hampshire | 31 | 33.90 | Georgia |
| E. B. Parmenter | Rhode Island Red | 31 | 33.75 | Passaic, N. J. |
| Ford's Riverbank Farm | Rhode Island Red | 31 | 33.40 | Maine |
| Pearl Poultry Farm | White Leghorn | 30 | 33.00 | Hunterdon, N. J. |
| Booth Farms and Hatchery | White Leghorn | 30 | 33.00 | Florida |
| E. B. Parmenter | Rhode Island Red | 30 | 32.90 | New York State |
| Nelson's Leghorn Breeding Farm | White Leg. | 29 | 30.95 | Arizona |

## High Hen in Each Breed to June 1 — (243 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| A. E. Guinn | White Leghorn | 234 | 255.40 | Georgia |
| Dryden Poultry Breeding Farm | Barred Rock | 228 | 246.40 | Missouri |
| Ford's Riverbank Farm | Rhode Island Red | 227 | 240.35 | Maine |
| S. C. Houck | New Hampshire | 219 | 234.35 | Pennsylvania |
| E. S. McSweeny | Black Australorp | 217 | 230.50 | Arizona |
| Lindstrom Poultry Farm | White Wyandotte | 203 | 221.70 | Georgia |
| Homestead Farm | White Rock | 200 | 216.80 | Storrs |
| Raymond Murphy | White Giant | 200 | 214.50 | Missouri |
| Colonial Poultry Farm | White Minorca | 182 | 193.50 | Georgia |
| S. E. Raymond | Lamona | 175 | 191.85 | Storrs |
| Donald C. Chandler | Silver Laced Wyandotte | 176 | 187.90 | Maine |
| Eriksen's Ancona Yards | Ancona | 190 | 187.70 | Storrs |
| Blue Ribbon Farms | Rhode Island White | 169 | 183.70 | Texas |
| Harry L. Phillips | Columbian Rock | 181 | 176.35 | Missouri |
| Laclede Hatchery | Buff Orpington | 172 | 169.00 | Florida |
| Lindstrom Poultry Farm | Buff Minorca | 173 | 166.25 | Rhode Island |
| Hall Bros. Hatchery | Cross | 151 | 164.35 | New York State |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 151 | 162.45 | Maine |
| Cedarlaid Poultry Farm | Brown Leghorn | 168 | 160.85 | Florida |
| Missouri Valley Hatchery | Buff Leghorn | 162 | 152.35 | Maine |

## High Hen in Each Standard Test to June 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| A. E. Guinn | White Leghorn | 234 | 255.40 | Georgia |
| Kauder's Pedigreed Leghorns | White Leghorn | 229 | 250.45 | Storrs |
| Dryden Poultry Breeding Farm | Barred Rock | 228 | 246.40 | Missouri |
| W. A. Seidel | White Leghorn | 229 | 243.75 | Texas |
| Gulfkist Poultry Farm | White Leghorn | 221 | 241.10 | Florida |
| Ford's Riverbank Farm | Rhode Island Red | 227 | 240.35 | Maine |
| Weber Duck Farm | Rhode Island Red | 219 | 239.90 | Michigan |
| Foreman Poultry Farm | White Leghorn | 223 | 238.70 | Hunterdon, N. J. |
| E. B. Parmenter | Rhode Island Red | 219 | 238.05 | Rhode Island |
| S. C. Houck | New Hampshire | 219 | 234.35 | Pennsylvania |
| C. T. Darby | White Leghorn | 223 | 232.50 | Passaic, N. J. |
| Douglaston Manor Farm | Rhode Island Red | 214 | 230.65 | Western New York |
| E. S. McSweeny | Black Australorp | 217 | 230.50 | Arizona |
| J. J. Warren | Rhode Island Red | 205 | 223.55 | New York State |
| Schwegler's Hatchery | White Leghorn | 216 | 220.20 | Central New York |
| Rucker's Imperial Breeding Farm | White Leg. | 223 | 218.75 | Oklahoma |

## 20 Highest White Leghorn Pens in Country to June 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Kauder's Pedigreed Leghorns | 2605 | 2805.00 | Storrs |
| John A. Clear | 2418 | 2573.55 | Hunterdon, N. J. |
| Guy A. Leader | 2483 | 2563.15 | Pennsylvania |
| Sand Springs Home Farm | 2407 | 2542.05 | Texas |
| Nelson's Leghorn Breeding Farm | 2388 | 2541.80 | Texas |
| Woodlawn Farm | 2335 | 2502.00 | Texas |
| Woodlawn Farm | 2382 | 2490.20 | Texas |
| Kauder's Pedigreed Leghorns | 2367 | 2490.00 | Georgia |
| Dryden Poultry Breeding Farm | 2376 | 2476.15 | Michigan |
| Booth Farms and Hatchery | 2304 | 2471.65 | Oklahoma |
| Booth Farms and Hatchery | 2372 | 2471.50 | Florida |
| Guy A. Leader | 2367 | 2464.20 | Storrs |
| Kauder's Pedigreed Leghorns | 2354 | 2454.90 | Georgia |
| Erath Egg Farm | 2361 | 2451.65 | Texas |
| Dublin Poultry Farm | 2389 | 2448.30 | Georgia |
| Bryan J. Snell | 2266 | 2446.00 | Pennsylvania |
| Foreman Poultry Farm | 2302 | 2420.75 | Texas |
| Gulfkist Poultry Farm | 2357 | 2419.00 | Florida |
| I. Commer | 2331 | 2416.25 | Texas |
| Foreman Poultry Farm | 2415 | 2413.30 | Florida |

## 20 Highest Rhode Island Red Pens in Country to June 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Thomas Mettler | 2688 | 2730.65 | Hunterdon, N. J. |
| Ford's Riverbank Farm | 2600 | 2612.75 | Maine |
| Ralph W. Anderson | 2351 | 2520.35 | Storrs |
| D. I. Goodenough | 2353 | 2504.95 | Storrs |
| Vans R. Otey | 2405 | 2504.30 | Florida |
| J. J. Warren | 2371 | 2494.15 | Storrs |
| J. J. Warren | 2328 | 2492.25 | Rhode Island |
| Ford's Riverbank Farm | 2407 | 2465.65 | Michigan |
| J. J. Warren | 2312 | 2451.60 | Pennsylvania |
| J. J. Warren | 2263 | 2435.20 | Storrs |
| R. O. Wagemaker | 2258 | 2430.45 | Missouri |
| W. C. Mullins | 2269 | 2430.15 | Texas |
| Donald L. Crooks | 2286 | 2410.50 | Storrs |
| Wene Chick Farms | 2323 | 2397.00 | Storrs |
| R. E. and F. H. Kendrick | 2250 | 2388.00 | Rhode Island |
| George A. Pearce | 2378 | 2383.50 | Passaic, N. J. |
| L. D. Bartholomew | 2339 | 2381.00 | Storrs |
| Homestead Farm | 2253 | 2377.00 | Storrs |
| E. B. Parmenter | 2284 | 2371.20 | Florida |
| Weber Duck Farm | 2341 | 2347.85 | Florida |

## 20 Highest New Hampshire Pens in Country to June 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| A. J. Williams | 2436 | 2493.75 | Florida |
| Hubbard Farms | 2393 | 2467.55 | Storrs |
| Edward N. Larrabee | 2318 | 2439.65 | Storrs |
| Steelman Poultry Farms | 2252 | 2365.45 | Storrs |
| Del Rio Farm | 2171 | 2299.35 | Arizona |
| A. J. Williams | 2193 | 2284.20 | Florida |
| Thomas J. Harrold | 2259 | 2269.00 | Georgia |
| W. H. Boulware | 2186 | 2268.15 | Florida |
| Fuzzydele Farms | 2078 | 2237.85 | Pennsylvania |
| Colonial Poultry Farm | 2137 | 2186.10 | Arizona |
| Eben Wood | 2100 | 2184.70 | Maine |
| S. C. Houck | 2092 | 2175.05 | Pennsylvania |
| James H. Horne | 2092 | 2172.70 | Maine |
| Fuzzydele Farms | 2076 | 2140.75 | Western New York |
| Eben Wood | 2020 | 2113.70 | Pennsylvania |
| Goodwin's Poultry Farm | 2038 | 2108.95 | Storrs |
| Quimby School | 2174 | 2097.20 | Maine |
| Pine Top Poultry Farms | 1944 | 2089.50 | Georgia |
| Stroehlein Brothers | 2054 | 2087.55 | Passaic, N. J. |
| Eben Wood | 1986 | 2086.30 | Passaic, N. J. |

## 20 Highest Barred Plymouth Rock Pens in Country to June 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Dryden Poultry Breeding Farm | 2354 | 2360.40 | Pennsylvania |
| Dryden Poultry Breeding Farm | 2320 | 2358.40 | Central New York |
| Dryden Poultry Breeding Farm | 2142 | 2235.60 | Missouri |
| David T. Cohen | 2143 | 2207.55 | Central New York |
| Fuzzydele Farms | 2107 | 2182.30 | Storrs |
| Dryden Poultry Breeding Farm | 2146 | 2177.15 | Storrs |
| Charles Lathrop | 2054 | 2164.50 | Passaic, N. J. |
| Eben Wood | 2154 | 2164.00 | Maine |
| Riley Poultry Farm | 2163 | 2136.45 | Michigan |
| R. C. E. Wallace | 2066 | 2115.95 | Central New York |
| Egyptian Hatchery | 2072 | 2100.35 | Missouri |
| Riley Poultry Farm | 2045 | 2089.70 | Georgia |
| Gulf Coast Hatchery | 2063 | 2057.85 | Florida |
| R. C. Cobb | 1932 | 2052.70 | Storrs |
| Charles Lathrop | 2038 | 2044.70 | Hunterdon, N. J. |
| Weber Duck Farm | 1884 | 2011.25 | Rhode Island |
| Weber Duck Farm | 1927 | 2007.35 | Michigan |
| Frank Teasdale | 1990 | 2004.60 | Michigan |
| Weber Duck Farm | 1984 | 2004.15 | Florida |
| R. C. E. Wallace | 1916 | 1997.60 | Oklahoma |

## 20 Highest White Plymouth Rock Pens in Country to June 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Oscar W. Holtzapple | 2145 | 2193.30 | Georgia |
| Homestead Farm | 2155 | 2171.10 | Pennsylvania |
| Riley Poultry Farm | 2172 | 2143.25 | Oklahoma |
| Kalerok Farm | 1977 | 2082.05 | Rhode Island |
| Quimby School | 1966 | 2059.35 | Rhode Island |
| Oscar W. Holtzapple | 2007 | 2043.10 | Pennsylvania |
| Homestead Farm | 1982 | 2025.30 | Storrs |
| Albert C. Lawton | 1873 | 1967.25 | Rhode Island |
| Kalerok Farm | 1879 | 1959.80 | Pennsylvania |
| Red Barn Poultry Farm | 1868 | 1946.20 | Storrs |
| Tender Broiler Hatchery | 1923 | 1942.95 | Oklahoma |
| Earl C. Dunham | 1881 | 1939.70 | Georgia |
| Booth Farms and Hatchery | 1774 | 1852.65 | Missouri |
| Lewis Farms | 1827 | 1846.80 | Rhode Island |
| E. A. Hirt | 1735 | 1821.85 | Storrs |
| Riley Poultry Farm | 1851 | 1821.35 | Michigan |
| Miami Chick Hatchery | 1774 | 1818.40 | New York State |
| Kalerok Farm | 1721 | 1811.40 | Storrs |
| Faith Farm | 1807 | 1808.05 | New York State |
| E. A. Hirt | 1738 | 1807.75 | Maine |

## Average Production in Each Test to June 1

| Test | No. Birds | Eggs Per Bird | Points Per Bird | Egg Wt. Per Doz. | Per Cent Mortality for May | Per Cent Mortality to June 1 |
|---|---|---|---|---|---|---|
| Texas | 910 | 147.92 | 153.62 | 24.9 | 4.50 | 16.70 |
| Arizona | 260 | 148.71 | 151.35 | 24.4 | 1.53 | 10.00 |
| Pennsylvania | 1,131 | 142.14 | 146.58 | 24.7 | 2.12 | 10.16 |
| Storrs | 1,300 | 140.35 | 145.05 | 24.7 | 1.84 | 11.30 |
| Hunterdon, N. J. | 650 | 140.29 | 143.41 | 24.5 | 3.23 | 17.07 |
| Passaic, N. J. | 1,001 | 138.78 | 140.89 | 24.3 | 2.59 | 13.08 |
| Georgia | 1,300 | 140.25 | 140.23 | 23.9 | 1.69 | 23.92 |
| Florida | 1,248 | 138.28 | 138.59 | 24.0 | 1.36 | 12.90 |
| Western New York | 884 | 134.32 | 136.95 | 24.4 | 1.35 | 7.57 |
| Oklahoma | 650 | 132.07 | 135.46 | 24.6 | 2.76 | 14.61 |
| Rhode Island | 650 | 125.79 | 131.77 | 25.1 | 2.92 | 15.69 |
| Michigan | 897 | 128.12 | 131.43 | 24.6 | 3.01 | 16.83 |
| Central New York | 910 | 126.62 | 129.45 | 24.5 | 2.85 | 10.65 |
| Missouri | 780 | 114.64 | 120.35 | 25.2 | 2.69 | 19.35 |
| New York State | 1,222 | 118.23 | 117.69 | 23.8 | 1.88 | 13.66 |
| Maine | 1,027 | 114.95 | 115.75 | 24.1 | 3.01 | 20.83 |
| All Tests | 14,820 | 132.92 | 135.63 | 24.4 | 2.39 | 14.83 |

* One week behind other tests in opening because of hurricane.

## High Pen, Each Breed, in Illinois Non-Standard Test to June 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Egyptian Hatchery | White Leghorn | 1433 | 1487.20 |
| Egyptian Hatchery | Barred Rock | 1331 | 1335.35 |
| Mrs. Curtis Manshak | White Rock | 1176 | 1210.70 |
| Illinois Hatchery | Rhode Island Red | 1027 | 1114.75 |
| Corn Belt Hatchery | New Hampshire | 983 | 1061.85 |
| Macomb Hatchery | Buff Orpington | 832 | 851.45 |
| Belldear Hatchery | White Wyandotte | 828 | 827.20 |
| H. R. Harnes | Brown Leghorns | 667 | 618.95 |
| Wallace Moody | Buff Rock | 600 | 598.90 |

## 5 High Pens, R. O. P. Progeny Test, Paterson, N. J., to June 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Stroehlein Brothers | White Leghorn | 2556 | 2661 |
| E. B. Parmenter | Rhode Island Red | 2495 | 2607 |
| Wegatepa Farms | Rhode Island Red | 2537 | 2564 |
| Oak Knoll Poultry Farm | White Leghorn | 2425 | 2435 |
| Creighton Brothers | White Leghorn | 2372 | 2404 |

## High Pen, Each Breed, Vineland, N. J., Hen Test to June 1

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Sebold Poultry Farm | White Leghorn | 1500 | 1605 | Two-Year |
| J. J. Warren | Rhode Island Red | 1214 | 1323 | Two-Year |
| Nedlar Farm | New Hampshire | 1214 | 1313 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 913 | 991 | Two-Year |
| J. A. Hanson | White Leghorn | 1043 | 1130 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 970 | 1043 | Four-Year |
| Raymond Gardner | White Rock | 387 | 418 | Four-Year |

## High Pen, Each Breed, Vineland, N. J., Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| J. J. Warren | Rhode Island Red | 5120 | 5544 | Two-Year |
| Sebold Poultry Farm | White Leghorn |  | 5244 | Two-Year |
| Nedlar Farm | New Hampshire | 4846 | 5210 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 3956 | 4184 | Two-Year |
| J. A. Hanson | White Leghorn | 6947 | 7471 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 9634 | 10,161 | Four-Year |
| Raymond Gardner | White Rock | 5339 | 5661 | Four-Year |

## High Pen, Each Breed, in Pennsylvania Hen Test to June 1

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| John Schrope | White Leghorn | 1712 | 1861.15 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 1258 | 1373.40 | Two-Year |
| Fuzzydele Farms | New Hampshire | 1142 | 1249.50 | Two-Year |
| E. B. Parmenter | Rhode Island Red | 1078 | 1181.55 | Two-Year |
| Fuzzydele Farms | Barred Rock | 1225 | 1333.25 | Mixed-Age |
| A. M. Wolgemuth | White Leghorn | 904 | 984.20 | Mixed-Age |
| Schwegler's Hatchery | New Hampshire | 644 | 693.25 | Mixed-Age |

## High Pen, Each Breed, in Pennsylvania Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Lindstrom Poultry Farm | White Leghorn | 5294 | 5597.70 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 4428 | 4700.80 | Two-Year |
| E. B. Parmenter | Rhode Island Red | 4414 | 4667.05 | Two-Year |
| Fuzzydele Farms | New Hampshire | 4216 | 4437.20 | Two-Year |

## *Among Our Contributors*

**Dr. Hubert Bunyea** (p. 388), who is now veterinary consultant with the coordinators of the National Poultry Improvement Plan, is a pathologist for the U. S. Bureau of Animal Industry, having been in charge of the Bethesda, Md., branch laboratory since 1931. He developed the rapid, whole blood test for pullorum disease in collaboration with W. J. Hall and Marion Dorset. His work on the transmission of pullorum disease in incubators is well known.

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In his studies of mortality, Kimber has held about 1,000 families of full sisters absolutely unbroken, holding them until death at which time careful autopsies are made to determine the cause of death.

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## *Produce What Is In Demand*

I have heard turkey growers say they weren't going to raise smaller turkeys because it would be more expensive to produce them than it is to produce the larger birds. They may be right about that. But I should like to remind them that it was cheaper to produce buggies than it was to produce automobiles, too.

The fact that something can be produced inexpensively is no reason in itself for producing it.

The first thing to do is manufacture or raise the product for which there is a demand. The next thing is to do it for as little as possible.

This is just as true for persons who are raising chickens as for those who are raising turkeys and hogs. In the last few years it has been proved that there is money to be made in the production of poultry meat as well as eggs.

So it seems to me poultry raisers who are keeping up with the times will want birds that are bred for desirable market qualities as well as the ability to lay eggs.

—Frank Priebe's Weekly Letter, June 3, 1939.

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NATIONAL

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## *Our Poultry Congress Reports*

**This issue presents the first of the material gathered at the Seventh World's Poultry Congress. From all indications, publication of the remainder of the popular talks and other reports, because of their length, will have to extend over the next three or four issues.**

**As announced in the July issue, all of the talks presented on the popular program will be published in the DIGEST. To insure complete coverage, it was necessary for our stenotypist to report nine of the talks on the popular program, as well as several given on the consumer program.**

**The condensed versions of most of the talks are but little shorter than the original. The procedure has been largely one of removing extraneous matter having no direct bearing to the subject under discussion, consisting largely of introductory material and those pleasantries indulged in by speakers to hold the attention and interest of their audience.**

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NATIONAL POULTRY DIGEST

Hanover Pennsylvania

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Vol. 1, No. 8 August, 1939

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By Henry A. Wallace
Secretary of Agriculture, U.S.A.

*Condensed from a Talk*

IN opening the Seventh World's Poultry Congress and Exposition and in welcoming the delegates, I rejoice in the knowledge that this scientific gathering will undoubtedly make an important contribution to the wealth and friendliness of nations.

This gathering is an illustration of the fact that people everywhere have similar natures, feelings, and problems. It is an illustration of the worldwide community of human interest. Men of science think of the problems with which they deal unhampered by prejudice of race or creed. Thus they foster an international democracy in searching for truth and reporting their findings. They value scientific work, not in terms of its local or national origin, but in terms of its truth and practical application.

### Progress by Pooling Methods

Poultry technology, like poultry science, progresses through pooling the methods worked out by many efforts. Each man working in the field draws more from the pool of experience than he is able to put into it. In this Congress, research, applied science, and discussion of economic problems all will promote the general welfare through an open exchange of facts and experience.

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national economic problems such as beset the wheat and sugar and cotton industries. Here and in other parts of the world there is increasing domestic need for poultry products. But there are important problems of consumption and marketing to solve and this international conference should provide important help.

This conference appropriately stresses production science. Occasional market gluts of poultry products are not necessarily proof that these products have been produced excessively. They do show the need for effectively moving production into consumption. We can promote this by action along two lines: (1) By stabilizing production and marketing; and (2) by increasing national income, and especially the share of the low-income groups.

### Progress Has Been Rapid

In the United States, and in many other countries, the poultry industry is more vigorous and profitable than some other branches of agriculture. It has two great advantages. First, it tends to benefit automatically from the fact that each year there are more mouths to be fed in both Europe and America; second, it profits from the enormous recent progress in the technology of breeding, hatching, feeding, and flock management. Recent years have seen an amazing development of efficiency in the poultry industry. This has its foundation in the development of artificial incubation and brooding, in methods of raising birds in close confinement, in artificial lighting, control of temperature and ventilation, and in the use of vitamin, mineral, and protein supplements in the poultry diet. These developments have revolutionized poultry practice.

With markets expanding and the cost of producing eggs declining, the recent vigorous development of the poultry industry was but natural. The domestic markets for poultry may expand more slowly in the future, as the rate of growth in national population goes down.

### Consumption Must Keep Pace

But another factor may offset the decline in the rate of population growth. Most countries today are concerned about the welfare of the low-income groups. In proportion as the nations succeed in improving the purchasing power of these groups the consumption of eggs and poultry per capita will rise. Efforts along this line will undoubtedly continue everywhere. The reason is plain. Technology stimulates production in all lines. Ultimately, the only way to make consumption keep step with production is to increase the consumption of the lower-income groups. No other general solution of the problem is conceivable. Here and there single nations may find outlets for their excess production in exports.

But the poultrymen of most nations will have to depend largely on domestic balance between consumption and production for enlarging the market. We might as well begin along the right line now and figure on the absolute necessity of raising the consumption of the low-income groups. Poultrymen especially stand to gain.

In its rise from a small farm side line to a great commercial industry, poultry raising in the United States got off to a late start. Early in the nineteenth century poultry markets had not been developed. In the flush seasons, the farmers had poultry for sale, but mostly they raised poultry to supply eggs and meat for their own tables. City people too raised poultry for their own use just as they grew flowers and vegetables.

The egg market developed before the poultry market. Eggs could be stored and transported better than fowls. Also, in a land of abundant meat, eggs were more highly prized than poultry. Now that the poultry industry has come of age commercially, with commercial hatcheries and farm flocks at once competing and collaborating, its further progress will depend largely on increased consumption. There is a margin for expansion, too, in our continued though lessened population growth, but that cannot be counted on for much more than 10 to 15 years, in the United States, at least.

In drawing a picture of the general pattern on which the poultry industry has been developing in the United States, I should like to glance back at some anniversary dates. Then I wish briefly to sketch the present position of our poultry industry in terms of income and relative prices. This will lead me to some remarks on technological development and on some of its implications.

### First Poultry Show in 1849

First, as to some of the interesting anniversary dates I mentioned, it appears that this country's first poultry show was held in Boston, Mass., in 1849. Nearly 70 years ago appeared the first poultry magazine, the Poultry Bulletin of New York City. In 1879 L. C. Byce of California is said to have made the first successful mechanical incubator that was sold to poultrymen on a commercial scale. In the same year a woman writing in the "Cultivator and Country Gentlemen" described the physical changes that she had observed in her fowls as autumn approached. This was the first reference to factors subsequently used in culling laying flocks. Also in 1879 Pasteur reported regarding vaccination against chicken cholera. In 1889 Rice and McGowan built, but did not patent, a successful trapnest, the invention that made modern poultry breeding methods possible.

Also in 1889 Waldorf published the first report in this country on the use of artificial light to increase winter egg production. In 1899 or thereabouts the 30-dozen egg case commonly replaced the barrel. An important event in 1899 was Retgers' isolation of the germ of pullorum disease. In 1909 baby chicks began to be advertised extensively. In 1919 South Dakota passed the first good egg law, requiring the candling of eggs and forbidding the sale of inedible eggs. In 1929 the New Jersey Experiment Station began the first experimental work with a sectional brooder. Reinforcing all these developments was the utilization of vitamin D, the nutritional basis of the modern poultry flock with its artificial environment.

### Vitamin D Discovery Important

Twenty years ago it was difficult if not impossible to raise chickens in strict confinement. There was no substitute then for sunlight and access to soil. Vitamin D was still an unknown component of the fat-soluble vitamin. Scientists had not yet dreamed of vitamin G, vitamin K, and the chick antidermatosis factor. They did not know that manganese is essential in the diet of a chicken. Then came developments that revealed more about the quantitative nutritive requirements of poultry than we knew about those of all other classes of livestock together. The effects were revolutionary.

Poultrymen learned that if chickens received cod liver oil in their diet, they could be raised in confinement. Thereafter egg production was no longer uncontrollably seasonal. Scientific poultry feeding in commercial and farm flocks gave us more eggs in the fall and winter and moderated the seasonal swing of egg prices. Year-round production of broilers developed. With cod liver oil and other fish oils in the diet, broilers could be produced every month of the year. Perosis, also known as slipped tendons or hock disease, ceased to be a bad hazard in the production of broilers. Nutrition studies showed that if the diet contained enough manganese, perosis was not likely to occur.

### High Mortality a Problem

Many problems remain to challenge the investigator. High mortality among poultry is an outstanding one; it seems to be largely of environmental origin, and may yield to further nutrition knowledge, combined with genetic and pathological research.

There are unsolved nutritional problems of "crazy chick" disease, chick dermatosis, and cannibalism. Nutrition science may show how to improve the quality of poultry meat and eggs. Eventually, it will round out the whole technique, and tell us infinitely more than we know today about the nutrition requirements of poultry for reproduction, growth, egg production, and fattening. Recent progress with egg hatchability is a sign. Not many years ago only about 60 to 70 per cent of the fertile eggs set in commercial hatcheries produced live chicks. Hatcherymen can now get fertile eggs with a hatchability of 90 per cent or more.

### Poultry Research Aids Humans

Poultry research, like other types of scientific work, knows no frontiers between countries. The benefits extend to all nations and to all human interests. Recent applications of poultry work in medicine are a reminder. Poultry investigations contributed much to revealing the facts about the vitamin B-G complex and this in turn led to a knowledge of the role of nicotinic acid in the prevention of pellagra.

Nutrition studies with chicks and rats showed that there is more than one kind of vitamin D and that the several kinds are not equally effective in all species. This discovery had a direct application to human nutrition. Experiments with chicks revealed the antihemorrhagic factor, or vitamin K. This vitamin quickly proved of value in pre-operative treatment for the prevention of post-operative hemorrhage in surgical operations on the gall-bladder and bile ducts. These facts are now evidence of the familiar truth that the by-products of research are often as important as the intended results.

In connection with the nutrition of poultry we should notice the place of poultry products in human nutrition. Poultry, like other meats, is valuable for its protein, since protein of good quality is an essential body-building material. It is a good source of phosphorus and iron. Poultry also contains riboflavin (vitamin G) and thiamin (vitamin $B_1$), and nicotinic acid (the pellagra-preventing factor).

Eggs contain many of the substances essential for human growth and development. They furnish protein, calcium, phosphorus, and iron, as well as vitamins. The yolk is an excellent source of vitamin A; it is an excellent or a good source of vitamin D. In this vitamin its value depends on the diet of the hen. Eggs from flocks that get vitamin-rich diets are especially rich in vitamins A and B. Eggs also are a good source of riboflavin (vitamin G), thiamin (vitamin $B_1$), and a fair source of nicotinic acid. Because they contribute minerals, vitamins, and proteins, eggs are a good food for human beings of all ages.

### Poultry and Egg Price History

Let us turn now to the reflection of these developments in poultry prices and incomes. Fifty years ago prices in this country were very low for all poultry products. Taking the period 1910-14 as 100 we find that the purchasing power of chickens in exchange for other farm products was only 80 in 1879. In recent years it has been around 120. In the 50-year period the purchasing power of chickens in comparison with other farm products has risen 50 per cent. Eggs have not risen so greatly in purchasing power. Eggs at wholesale in New York in 1938 were only 14 per cent higher than in 1888, while dressed fowl at wholesale were 64 per cent higher in 1938 than in 1888. This disparity results partly, of course, from the fact that a modern hen produces more eggs. There are other reasons too. Fifty years ago, for example, the market fowl was much inferior to the modern product.

### 12 Per Cent of Farm Income

Chickens and eggs are making an increasingly important contribution to farm income. In fact, in 1938 poultry and eggs produced more gross income in the United States than any other one farm commodity except milk, cattle, and hogs. Poultry and eggs produced nearly $1,000,000,000, or about 12 per cent of the total farm income. This is surprising in view of the fact that poultry is still largely a farm side line.

Fifty years ago the gross farm income from poultry and eggs was only about 5 per cent of the total. We may contrast this showing with that of wheat. Fifty years ago wheat provided about 12 per cent of the gross farm income. Now it returns only about 5 or 6 per cent.

The rising place of poultry in the farm economy reflects once more the difference between producing for the domestic and producing for the foreign market. Crops that we produce heavily for export, with the exception of tobacco, are in a much worse relative price position than the crops produced mainly for consumption in this country. Fifty years ago our poultry produced about nine dozen eggs annually for every man, woman, and child in the United States. Today it produces about 22 dozen eggs annually per capita.

Commercial production in specialized breeds is becoming more and more important. Egg production from this source will undoubtedly become a still larger proportion of the total output. Our commercial hatcheries in 1934 had an estimated total capacity of 276,000,000 chicks and their capacity is considerably larger now. Sample flock returns indicate that commercial flocks produce about 19 per cent more eggs per layer than average farm flocks. Farm flocks, however, have begun to improve in recent years. In 1938 the average production per layer in farm flocks was 106 eggs as compared with only 90 in 1925.

### Ideas Spread Rapidly

Nowadays the progress of technology spreads to more producers more rapidly than it did formerly. In the poultry industry it benefits the small flock-owner, as well as the large producers with large capital. Through the purchase of well-bred baby chicks, the small flock-owner can improve his flock quickly and uniformly. He can buy or build efficient poultry houses at low cost. He can provide a balanced ration for his birds, combined scientifically from the products of his own farm, or developed from such products with the addition of purchased vitamin concentrates.

Improved marketing, perhaps in cooperation with his neighbors, can bring to him the advantages of low-cost, judicious distribution. He can fit his poultry operations skillfully into the rest of his farm work, in such a way as to diversify his sources of income, utilize time and labor that might otherwise go to waste, and add something to the fertility of his land.

These advantages, along with the smaller overhead costs that usually distinguish poultry raising on the farm from poultry raising in large commercial plants on expensive land near large cities, are at least a partial offset to the efficiency of large-scale, highly mechanized and highly commercial production. Moreover, the opportunity to supply nearby local markets, as well as to improve the farm table, gives the farm flock a place in the poultry economy from which it will not easily be dislodged. There is an excellent prospect that farm flocks and specialized commercial poultry enterprises will become more and more complementary rather than more and more competitive, and that scientific principles and methods will gradually permeate the entire industry.

Here and in other countries the poultry industry has complex economic problems. These problems differ more from one country to another than do the technological problems; they arise from an immense variety of social conditions. Standards of living vary widely. Some countries produce poultry and eggs for export. Other countries do not satisfy their own requirements. Still other countries simultaneously import and export poultry products in large quantities. Nearly all countries have one task in common; they must raise the living standards of the poor. As I have said, this is the true path toward a balanced economy, and the path also toward increased consumption of poultry and eggs.

### Price Instability a Problem

One of the serious problems of the poultry industry in this country has been the lack of stability in prices and supplies of feeds and the lack of stability in prices and supplies of poultry and eggs. Excessively large feed supplies at excessively low prices encouraged new producers to go into the business and encouraged old producers to increase their business. The great droughts of 1934 and 1936 resulted in short feed supplies and rapidly rising feed prices. Prices for poultry and eggs did not keep pace with the prices for feed.

Poultrymen would like to be able to plan ahead both on the basis of prices they can expect to receive for their products and on costs of producing them. If they have no assurance of stability in feed supplies and prices and no assurance of stability in production of poultry and eggs, the hazards of the business are extreme.

Here in the United States we are trying to stabilize feed supplies and prices, through the national farm program. The Ever-Normal Granary which is a basic part of this program is maintained through provisions for storing the surpluses of years of good weather for use in years of bad crop weather. Our experience as yet has been limited. But we do know that we are less likely to suffer from feed crop shortage. We know that the commodity loans and the storage of grain surpluses have stabilized prices and evened out marketings. Adjustment of feed-grain acreage, along with prudent storage against years of drought, will lessen the speculative hazard in the poultry industry. Future World's Poultry Congresses may record as much progress toward the solution of this problem and the problem of translating the abundant poultry production that science makes possible into abundance of these healthful foods in the diets of all as the present Congress records toward the solution of problems in poultry feeding, breeding, and care.

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## It Takes a Better Hen to Earn Her Keep

ROUGHLY, 40 years ago the price of eggs was pretty well set on age. Storage eggs weren't worth as much as fresh eggs, and eggs coming from the West weren't worth as much as those coming from New York and Pennsylvania into New York City. Later on the size of the egg was added to age, then color, and finally interior quality as measured by candling. Now age, among market men and within limits, of course, is fading in importance and actual quality is stressed more and more.

Other changes cannot really be called evolution, but rather a distinct shift of the facts. For instance, January is no longer the month in which egg prices are highest, as it was years ago. It is now nearly the lowest.

Spring prices no longer go down so low, nor do fall or winter prices go so high as they used to. In 1915 to 1919, for instance, the average egg price in the lowest month (April) was only 45 per cent of the price in the highest month (November). But in 1937 the price in the lowest month (May) was 67 per cent of the price in the highest month (October). Those are monthly average figures. If you actually take the lowest and highest prices on any one day, thirty years ago it was three to one; now it's just about two to one. So it's not quite so important to get those fall and winter eggs as it used to be (but it's still a good idea). Relatively speaking, costs of producing eggs in the different months of the year and getting bigger total production are now more worth thinking about.

This last point — higher total production of eggs per hen—is now more important because of another change. Average egg prices for a whole year in relation to costs of producing them have also been lowered. It takes a better hen to earn her keep than it used to. There are more good layers, so competition from hen to hen is also keener.

Still another change is that competition has increased greatly in certain classes of eggs. The best egg field is more crowded than it used to be in all our eastern markets. Not only has the heavy surplus of a big poultry industry on the Pacific Coast come into this field, but we here in Northeast have furnished ourselves with more competition. We've produced more eggs and we've made them better. This change has come about very fast in the last five to eight years.

—J. C. Huttar, American Agriculturist, Mar. 4, 1939.

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KNOWING no fear, incubator chicks will play with snakes, toads, etc., but hen hatched chicks won't.

—Carl H. Schroeder, Poultry Tribune, July, 1939.

# Congress Facts and Sidelights

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* * *

Most downtown department stores had information booths where strangers could get information about how to get around Cleveland and

helpful information about the Congress itself. The Higbee Co. issued a little booklet welcoming strangers to Cleveland, offering a guide to conduct them on a tour of the store, announcing that a postoffice and checking room were available in the store, and even offering to cash checks upon receipt of identification.

* * *

The most valuable chicken in Cleveland during the Congress was not even at the Congress and Exposition! It was located in the window of H. W. Beattie & Sons, jewelers, on Euclid Avenue. This bird was a magnificent rooster made of more than 1500 precious stones, including diamonds, rubies, emeralds, sapphires, topaz and onyx, and was valued at approximately $100,000. This model was made especially in honor of the Congress and took three days to assemble.

* * *

"What do they do with these frozen eggs, ship them to Alaska?" one man asked at the American Frozen Egg Industry exhibit, where eggs were being broken and prepared for freezing.

* * *

Koko the Clown had a lot of fun with the ladies. One of his favorite tricks was to offer a lady a rose and then have her walk off with just the stem!

* * *

There probably weren't any steaks prepared in Cleveland's restaurants during the Congress as big as those the Osage Indians cooked in real Indian fashion for official guests at the Indian tepee on August 2. Those steaks were two feet long.

* * *

The May Company window on the Public Square of Cleveland attracted much attention during the entire Congress. From a microphone above the window came sounds of hens cackling and a rooster crowing. In the center of the window was a large sphere representing the earth with little toy chicks placed on various countries over the entire globe. This split in the center, with the halves moving to each side, showing a farmer boy and girl holding a banner —"Welcome Delegates and Visitors from All Over the World." On the right of this globe were two animated hens pecking at feed. On the other side of the window was an old fashioned coop containing a hen with a brood of chicks on a revolving plate, moving through the coop.

* * *

Cleveland's newspapers did a fine job of reporting the daily happenings at the Congress, and their reporters and cameramen were on the job wherever some special event was taking place. Numerous editorials and editorial cartoons on the Congress were published. But they insisted upon calling the event a "poultry show" instead of a "congress and exposition."

* * *

There were smiles on the faces of most Cleveland business people during the Congress, but just about the happiest persons in town were the parking lot owners. J. S. McGill, manager of a lot right near the Cleveland Auditorium, had to put his lot on a 24-hour basis, which was something he "never expected to see." On one day he had 18 busses from out of town in his parking ground.

* * *

The New York World's Fair may have its "Flushing feet," but the Seventh World's Poultry Congress had its "Congress feet." The symptoms were probably the same — a lot of dragging of feet, plopping into chairs with pained exclamations of "Oh, my dogs!" One enterprising Cleveland chiropodist went through the exposition buildings, passing out his business cards to any who appeared to be foot weary.

* * *

One of the ladies from the English delegation, busy with attending luncheons, banquets, receptions and teas since the opening of the Congress, waited until the afternoon of the closing day to make the rounds of the exhibits to gather literature to take back with her. We do not know how successful she was, because the closing day was children's day, and their raids had exhausted the supplies of literature at most exhibits.

* * *

Between 4,000 and 5,000 people comprised the audience which heard Tom Barron, famed English breeder, relate some of his experiences in 50 years of breeding poultry. This is believed to be the largest crowd ever to have assembled in one meeting room to hear a poultry talk in America.

* * *

In spite of the uncertainties in the world today, 54 foreign nations were represented in some way at the Congress. Official delegates from foreign countries numbered 108 and represented the following 42 countries:

Argentina, Australia, Belgium, Bolivia, Brazil, Canada, Costa Rica, Cuba, Denmark, Dominican Republic, Ecuador, Egypt, Eire, El Salvador, England, Fiji Islands, Finland, France, Germany, Greece, Guatemala, Haiti, Hungary, Italy, Japan, Lithuania, Mexico, Netherlands, New Zealand, Northern Ireland, Norway, Palestine, Peru, Poland, Romania, Scotland, Sweden, Switzerland, Union of South Africa, Union of Soviet Socialist Republics, Wales and Yugoslavia.

The known foreign visitors and officials present numbered 185. This included the official delegates from Canada, but not the thousands of Canadian visitors who were present.

Countries represented in the Pan American Center in the Hall of Nations and States included Chile, Colombia, Honduras, Nicaragua, Panama, Paraguay, Uruguay and Venezuela.

Foreign countries with individual exhibits in the Hall of Nations and States included Canada, Cuba, England, Germany, Hungary, Italy, Japan and the Netherlands.

Canada, Cuba, England, France, Italy and the Netherlands were represented in the International Live Bird Exhibit.

Scientific papers from 21 countries were presented in the various sessions. They included the following countries:

Bulgaria, Canada, Czechoslovakia, Denmark, Egypt, Eire, England, Estonia, Germany, Hungary, Italy, Japan, The Netherlands, Norway, Poland, Romania, Scotland, Union of South Africa, Spain, Sweden, and the United States.

* * *

The colorful, scarlet-coated Royal Canadian Mounted Police detachment proved to be the entertainment hit of the Poultry Congress. The Congress stadium was packed for each performance and onlookers occupied every point of vantage nearby.

* * *

One commercial exhibit that attracted an unusual amount of interest was that of Dr. Salsbury's Laboratories. The light maple woodwork comprising the cabinets and the panel background was unusual in itself, but there was also the transparent hen showing the location of the various organs of a healthy fowl, another showing the location of some common diseases, and still another showing the location of various parasites. More than 60 Salsbury representatives worked in shifts escorting visitors through each section of this very educational exhibit.

* * *

The success of the Seventh World's Poultry Congress is a tribute to the ability and organizing genius of that group of men selected by the industry to assume the responsibility of staging this great exposition.

To complete the record, here are the members of that group:

James E. Rice, general chairman. Professor emeritus of Cornell University and dean of American poultry educators.

W. D. Termohlen, secretary-general. Representing the U. S. Department of Agriculture.

Lloyd S. Tenney, treasurer of the industry committee. Manager of the Chicago Mercantile Exchange.

Sidney A. Edwards, managing director of the Congress.

H. A. Bittenbender, exposition manager.

E. B. Heaton, representative of marketing groups on industry committee. Managing director of the Institute of American Poultry Industries.

Glenn Campbell, publicity director. Cleveland advertising man.

Reese V. Hicks, I. B. C. A. representative on industry committee. Executive secretary of the International Baby Chick Association.

D. D. Slade, chairman of the state committees council. Kentucky hatcheryman.

C. W. Warburton, U. S. Department of Agriculture representative.

Fred Lyon, U. S. Department of State representative.

Walter Lloyd, chairman of Ohio committee. Editor of the Ohio Farmer.

Fred C. Elford, advisory member from Canada.

## *Scaring Birds to Death*

Do you know that poultrymen have killed many birds by scaring them? Unfortunately, they do not die immediately after they are injured, and consequently poultrymen do not realize what happened.

You probably have seen birds standing around, their combs turning purple and going light in body weight. Upon killing such birds and opening them you quite commonly find a tumor or other internal injuries. We believe that most of these come from either frightening the birds or handling them too roughly.

Undoubtedly, one of the biggest single causes for injury is the type of hoppers used most commonly in poultry houses today. While the table hopper is a big improvement over the old type wall hopper, the average poultryman supplies only half enough hopper space for the hens plus the fact that the table type hopper creates blind spots.

The birds on the floor waiting for a chance to eat become impatient and as a result jump up and begin pulling some of the feathers off the abdomen of the birds at the hopper. This causes confusion among the birds that were eating peacefully.

A still more important fact is that some of the birds on the floor behind the hopper are unable to see who is coming into the pen. Probably all they do see is your feet moving across the floor. We presume out of curiosity they jump up to see what it's all about. This unexpected flight frightens the other birds and they bump into the hoppers, nests and walls trying to get away. Such birds are nervous and are unable to do their best.

We believe you can do more to tame your birds and keep them friendly by putting your hoppers on the floor, than any other single improvement you might make in your management.

—From "Ful-O-Pep for Laying Hens," Copyrighted, 1939, The Quaker Oats Company.

# Live Poultry at the Congress

By Thomas E. Moncrief

FOUR distinct and separate phases of live poultry exhibits were presented at the World's Poultry Congress. These consisted of a Pageant of Poultry composed of pairs of each breed and variety of land and waterfowl recognized by the American Poultry Association; commercial breeders' exhibits staged along with commercial and industry exhibits; an international live bird exhibit; and a large competitive live poultry show.

## Pageant of Poultry

The non-competitive Pageant of Poultry, located at the southern end of the Hall of Industry, presented a great variety of colors. This was under the direction of Paul P. Ives, New Haven, Conn.

The decorating was artistically carried out to convey a forest-like atmosphere. Large pillars in two rows extending the length of the hall were covered with brown and black colored crepe paper which looked just like the bark of a tree. Fastened near the ceiling and hanging down from each pillar were green and red leaves. Around the base of each "tree," and scattered throughout the hall were many evergreens.

In the center of the hall was a large fountain surrounded by flagstone walks, evergreens and rhododendrons. Orange and green lights played upon the fountain from the different levels of the pyramid-like base, and water lilies and ivy at the foot of the fountain added further beauty.

### Pageant Started with Jungle Fowl

The idea for decorating the hall as a forest probably came from the fact that the Jungle Fowl from which all modern poultry originated, inhabited the primeval forests of India, and thus these birds became the centerpiece of this Pageant. Since there is not a living pair of the pure strain of Jungle Fowl left, as far as we know, the Congress obtained a stuffed pair of these birds from Dr. D. S. Newill of Connelsville, Pa.

Included in this display were more than 100 different specimen pairs of domestic poultry, each a distinct breed or variety. This included pea fowl, turkeys, chickens, ducks, geese and pigeons. From pint-sized bantams to geese and turkeys weighing 35 pounds or more, the array was most interesting.

The groups were classified according to families, with all continents represented. In the American class were outstanding birds of all the well-known breeds and varieties. The mammoth Asiatics began with the Brahmas in all their various colors, followed by the large, round Cochins.

Sebastapol geese with their white, wavy plumes and white pea fowl with tails 7 feet long promenaded at the Pageant. The long-tailed Yokohamas from Japan had a special place of honor, too. The Chilean Aracuanas and a few of their blue-colored eggs, likewise, were displayed.

Large throngs throughout the Congress admired the many differently colored Rainbow Japanese Silkies in a large coop at one end of the hall. On the opposite side of the hall was a coop of Australian White Sacred, Bronze-Wing and Ringneck-Grey doves that caught the eyes of lovers of fancy birds. The various Pouter pigeons put on a show of their own in their corner of the hall.

And there were counterparts in the Bantam divisions, each a miniature of the larger breed, as well as slim little East Indian Ducks, Muscovy ducks, claimed to be the only ducks without a quack, and other breeds and varieties of water fowl. And last but not least, were the long-legged Malay Games which could touch the top of their 24-inch cage, and the other varieties of Games developed by the fanciers.

## Breeders' Exhibits

Along the sides and ends of the large hall containing the Pageant of Poultry were the commercial breeders' exhibits where the products of the modern poultry and egg producing industry were shown. Chairman of this division was Hobart Creighton, Warsaw, Ind.

Exhibitors in this group were from all parts of the country. All of the latest lighting effects and devices were utilized in showing the booths to best advantage. Many exhibits had large photomurals and series of photographs along the back and sides of the booths to show views of their farms, stock and various operations connected with running up-to-date poultry establishments. Air views of the farms and even oil paintings were employed in illustrating the plants for Congress visitors.

### Turkey Industry Exhibits

One outstanding exhibit in the hall with the Pageant of Poultry and the commercial breeders' exhibits was that made possible by a number of turkey breeders, turkey clubs and industrial organizations, advertising "the $70,000,000 Turkey Industry."

In the front of this exhibit was a large table containing a model turkey farm, with miniature brooder houses, fountains, roosts and all of the other equipment. On the left of this was another table on which there was an electric brooder in operation with baby poults.

In the center of the background was a picture of the North American wild turkey, beneath which was a stuffed wild turkey showing excellent coloring. Below this bird were beautifully colored pictures of the Narragansett, Black, White Holland, Bourbon Red, Bronze and Slate turkeys. Lights behind the pictures brought out the fine colors most effectively.

On both sides of the stuffed turkey were large pictures showing steps in the production and marketing processes. Near one side was a large copy of the well-known picture of the Pilgrims going to church on a winter day, and a description of the first Thanksgiving Day in 1621, how wild turkeys constituted the principal dish enjoyed by the Pilgrims at their first feast with the Indians, and how the traditional turkey dinner for Thanksgiving Day has persisted through the years.

## International Exhibit

From six different foreign countries a total of 687 head of poultry, including domestic chickens, bantams, game fowl, ducks, geese, turkeys, guineas and pigeons, were sent to take part in the international live bird exhibit at the Congress. Canada topped all other countries in the number of birds, with a total of 341 head. Italy was second with 145, followed by England with 109, Netherlands with 40, Cuba with 28 and France with 24.

This non-competitive international show occupied a part of the Hall of Live Poultry and was under the direction of Dr. Willard C. Thompson,

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Demonstrators in the Transparent Kitchens attracted crowds throughout the entire Congress, but one woman, at least, did not get a chance to see much of the demonstrations, for her husband pulled her away from the kitchens with the remark, "Oh, they can't cook as good as you can."

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Most downtown department stores had information booths where strangers could get information about how to get around Cleveland and helpful information about the Congress itself. The Higbee Co. issued a little booklet welcoming strangers to Cleveland, offering a guide to conduct them on a tour of the store, announcing that a postoffice and checking room were available in the store, and even offering to cash checks upon receipt of identification.

• • •

The most valuable chicken in Cleveland during the Congress was not even at the Congress and Exposition! It was located in the window of H. W. Beattie & Sons, jewelers, on Euclid Avenue. This bird was a magnificent rooster made of more than 1500 precious stones, including diamonds, rubies, emeralds, sapphires, topaz and onyx, and was valued at approximately $100,000. This model was made especially in honor of the Congress and took three days to assemble.

• • •

"What do they do with these frozen eggs, ship them to Alaska?" one man asked at the American Frozen Egg Industry exhibit, where eggs were being broken and prepared for freezing.

• • •

Koko the Clown had a lot of fun with the ladies. One of his favorite tricks was to offer a lady a rose and then have her walk off with just the stem!

• • •

There probably weren't any steaks prepared in Cleveland's restaurants during the Congress as big as those the Osage Indians cooked in real Indian fashion for official guests at the Indian tepee on August 2. Those steaks were two feet long.

• • •

The May Company window on the Public Square of Cleveland attracted much attention during the entire Congress. From a microphone above the window came sounds of hens cackling and a rooster crowing. In the center of the window was a large sphere representing the earth with little toy chicks placed on various countries over the entire globe. This split in the center, with the halves moving to each side, showing a farmer boy and girl holding a banner —"Welcome Delegates and Visitors from All Over the World." On the right of this globe were two animated hens pecking at feed. On the other side of the window was an old fashioned coop containing a hen with a brood of chicks on a revolving plate, moving through the coop.

• • •

Cleveland's newspapers did a fine job of reporting the daily happenings at the Congress, and their reporters and cameramen were on the job wherever some special event was taking place. Numerous editorials and editorial cartoons on the Congress were published. But they insisted upon calling the event a "poultry show" instead of a "congress and exposition."

• • •

There were smiles on the faces of most Cleveland business people during the Congress, but just about the happiest persons in town were the parking lot owners. J. S. McGill, manager of a lot right near the Cleveland Auditorium, had to put his lot on a 24-hour basis, which was something he "never expected to see." On one day he had 18 busses from out of town in his parking ground.

• • •

The New York World's Fair may have its "Flushing feet," but the Seventh World's Poultry Congress had its "Congress feet." The symptoms were probably the same — a lot of dragging of feet, plopping into chairs with pained exclamations of "Oh, my dogs!" One enterprising Cleveland chiropodist went through the exposition buildings, passing out his business cards to any who appeared to be foot weary.

* * *

One of the ladies from the English delegation, busy with attending luncheons, banquets, receptions and teas since the opening of the Congress, waited until the afternoon of the closing day to make the rounds of the exhibits to gather literature to take back with her. We do not know how successful she was, because the closing day was children's day, and their raids had exhausted the supplies of literature at most exhibits.

* * *

Between 4,000 and 5,000 people comprised the audience which heard Tom Barron, famed English breeder, relate some of his experiences in 50 years of breeding poultry. This is believed to be the largest crowd ever to have assembled in one meeting room to hear a poultry talk in America.

* * *

In spite of the uncertainties in the world today, 54 foreign nations were represented in some way at the Congress. Official delegates from foreign countries numbered 108 and represented the following 42 countries:

Argentina, Australia, Belgium, Bolivia, Brazil, Canada, Costa Rica, Cuba, Denmark, Dominican Republic, Ecuador, Egypt, Eire, El Salvador, England, Fiji Islands, Finland, France, Germany, Greece, Guatemala, Haiti, Hungary, Italy, Japan, Lithuania, Mexico, Netherlands, New Zealand, Northern Ireland, Norway, Palestine, Peru, Poland, Romania, Scotland, Sweden, Switzerland, Union of South Africa, Union of Soviet Socialist Republics, Wales and Yugoslavia.

The known foreign visitors and officials present numbered 185. This included the official delegates from Canada, but not the thousands of Canadian visitors who were present.

Countries represented in the Pan American Center in the Hall of Nations and States included Chile, Colombia, Honduras, Nicaragua, Panama, Paraguay, Uruguay and Venezuela.

Foreign countries with individual exhibits in the Hall of Nations and States included Canada, Cuba, England, Germany, Hungary, Italy, Japan and the Netherlands.

Canada, Cuba, England, France, Italy and the Netherlands were represented in the International Live Bird Exhibit.

Scientific papers from 21 countries were presented in the various sessions. They included the following countries:

Bulgaria, Canada, Czechoslovakia, Denmark, Egypt, Eire, England, Estonia, Germany, Hungary, Italy, Japan, The Netherlands, Norway, Poland, Romania, Scotland, Union of South Africa, Spain, Sweden, and the United States.

* * *

The colorful, scarlet-coated Royal Canadian Mounted Police detachment proved to be the entertainment hit of the Poultry Congress. The Congress stadium was packed for each performance and onlookers occupied every point of vantage nearby.

* * *

One commercial exhibit that attracted an unusual amount of interest was that of Dr. Salsbury's Laboratories. The light maple woodwork comprising the cabinets and the panel background was unusual in itself, but there was also the transparent hen showing the location of the various organs of a healthy fowl, another showing the location of some common diseases, and still another showing the location of various parasites. More than 60 Salsbury representatives worked in shifts escorting visitors through each section of this very educational exhibit.

* * *

The success of the Seventh World's Poultry Congress is a tribute to the ability and organizing genius of that group of men selected by the industry to assume the responsibility of staging this great exposition.

To complete the record, here are the members of that group:

James E. Rice, general chairman. Professor emeritus of Cornell University and dean of American poultry educators.

W. D. Termohlen, secretary-general. Representing the U. S. Department of Agriculture.

Lloyd S. Tenney, treasurer of the industry committee. Manager of the Chicago Mercantile Exchange.

Sidney A. Edwards, managing director of the Congress.

H. A. Bittenbender, exposition manager.

E. B. Heaton, representative of marketing groups on industry committee. Managing director of the Institute of American Poultry Industries.

Glenn Campbell, publicity director. Cleveland advertising man.

Reese V. Hicks, I. B. C. A. representative on industry committee. Executive secretary of the International Baby Chick Association.

D. D. Slade, chairman of the state committees council. Kentucky hatcheryman.

C. W. Warburton, U. S. Department of Agriculture representative.

Fred Lyon, U. S. Department of State representative.

Walter Lloyd, chairman of Ohio committee. Editor of the Ohio Farmer.

Fred C. Elford, advisory member from Canada.

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## Scaring Birds to Death

Do you know that poultrymen have killed many birds by scaring them? Unfortunately, they do not die immediately after they are injured, and consequently poultrymen do not realize what happened.

You probably have seen birds standing around, their combs turning purple and going light in body weight. Upon killing such birds and opening them you quite commonly find a tumor or other internal injuries. We believe that most of these come from either frightening the birds or handling them too roughly.

Undoubtedly, one of the biggest single causes for injury is the type of hoppers used most commonly in poultry houses today. While the table hopper is a big improvement over the old type wall hopper, the average poultryman supplies only half enough hopper space for the hens plus the fact that the table type hopper creates blind spots.

The birds on the floor waiting for a chance to eat become impatient and as a result jump up and begin pulling some of the feathers off the abdomen of the birds at the hopper. This causes confusion among the birds that were eating peacefully.

A still more important fact is that some of the birds on the floor behind the hopper are unable to see who is coming into the pen. Probably all they do see is your feet moving across the floor. We presume out of curiosity they jump up to see what it's all about. This unexpected flight frightens the other birds and they bump into the hoppers, nests and walls trying to get away. Such birds are nervous and are unable to do their best.

We believe you can do more to tame your birds and keep them friendly by putting your hoppers on the floor, than any other single improvement you might make in your management.

—From "Ful-O-Pep for Laying Hens," Copyrighted, 1939, The Quaker Oats Company.

# Live Poultry at the Congress

By Thomas E. Moncrief

FOUR distinct and separate phases of live poultry exhibits were presented at the World's Poultry Congress. These consisted of a Pageant of Poultry composed of pairs of each breed and variety of land and waterfowl recognized by the American Poultry Association; commercial breeders' exhibits staged along with commercial and industry exhibits; an international live bird exhibit; and a large competitive live poultry show.

## Pageant of Poultry

The non-competitive Pageant of Poultry, located at the southern end of the Hall of Industry, presented a great variety of colors. This was under the direction of Paul P. Ives, New Haven, Conn.

The decorating was artistically carried out to convey a forest-like atmosphere. Large pillars in two rows extending the length of the hall were covered with brown and black colored crepe paper which looked just like the bark of a tree. Fastened near the ceiling and hanging down from each pillar were green and red leaves. Around the base of each "tree," and scattered throughout the hall were many evergreens.

In the center of the hall was a large fountain surrounded by flagstone walks, evergreens and rhododendrons. Orange and green lights played upon the fountain from the different levels of the pyramid-like base, and water lilies and ivy at the foot of the fountain added further beauty.

### Pageant Started with Jungle Fowl

The idea for decorating the hall as a forest probably came from the fact that the Jungle Fowl from which all modern poultry originated, inhabited the primeval forests of India, and thus these birds became the centerpiece of this Pageant. Since there is not a living pair of the pure strain of Jungle Fowl left, as far as we know, the Congress obtained a stuffed pair of these birds from Dr. D. S. Newill of Connelsville, Pa.

Included in this display were more than 100 different specimen pairs of domestic poultry, each a distinct breed or variety. This included pea fowl, turkeys, chickens, ducks, geese and pigeons. From pint-sized bantams to geese and turkeys weighing 35 pounds or more, the array was most interesting.

The groups were classified according to families, with all continents represented. In the American class were outstanding birds of all the well-known breeds and varieties. The mammoth Asiatics began with the Brahmas in all their various colors, followed by the large, round Cochins.

Sebastapol geese with their white, wavy plumes and white pea fowl with tails 7 feet long promenaded at the Pageant. The long-tailed Yokohamas from Japan had a special place of honor, too. The Chilean Aracuanas and a few of their blue-colored eggs, likewise, were displayed.

Large throngs throughout the Congress admired the many differently colored Rainbow Japanese Silkies in a large coop at one end of the hall. On the opposite side of the hall was a coop of Australian White Sacred, Bronze-Wing and Ringneck-Grey doves that caught the eyes of lovers of fancy birds. The various Pouter pigeons put on a show of their own in their corner of the hall.

And there were counterparts in the Bantam divisions, each a miniature of the larger breed, as well as slim little East Indian Ducks, Muscovy ducks, claimed to be the only ducks without a quack, and other breeds and varieties of water fowl. And last but not least, were the long-legged Malay Games which could touch the top of their 24-inch cage, and the other varieties of Games developed by the fanciers.

## Breeders' Exhibits

Along the sides and ends of the large hall containing the Pageant of Poultry were the commercial breeders' exhibits where the products of the modern poultry and egg producing industry were shown. Chairman of this division was Hobart Creighton, Warsaw, Ind.

Exhibitors in this group were from all parts of the country. All of the latest lighting effects and devices were utilized in showing the booths to best advantage. Many exhibits had large photomurals and series of photographs along the back and sides of the booths to show views of their farms, stock and various operations connected with running up-to-date poultry establishments. Air views of the farms and even oil paintings were employed in illustrating the plants for Congress visitors.

### Turkey Industry Exhibits

One outstanding exhibit in the hall with the Pageant of Poultry and the commercial breeders' exhibits was that made possible by a number of turkey breeders, turkey clubs and industrial organizations, advertising "the $70,000,000 Turkey Industry."

In the front of this exhibit was a large table containing a model turkey farm, with miniature brooder houses, fountains, roosts and all of the other equipment. On the left of this was another table on which there was an electric brooder in operation with baby poults.

In the center of the background was a picture of the North American wild turkey, beneath which was a stuffed wild turkey showing excellent coloring. Below this bird were beautifully colored pictures of the Narragansett, Black, White Holland, Bourbon Red, Bronze and Slate turkeys. Lights behind the pictures brought out the fine colors most effectively.

On both sides of the stuffed turkey were large pictures showing steps in the production and marketing processes. Near one side was a large copy of the well-known picture of the Pilgrims going to church on a winter day, and a description of the first Thanksgiving Day in 1621, how wild turkeys constituted the principal dish enjoyed by the Pilgrims at their first feast with the Indians, and how the traditional turkey dinner for Thanksgiving Day has persisted through the years.

## International Exhibit

From six different foreign countries a total of 687 head of poultry, including domestic chickens, bantams, game fowl, ducks, geese, turkeys, guineas and pigeons, were sent to take part in the international live bird exhibit at the Congress. Canada topped all other countries in the number of birds, with a total of 341 head. Italy was second with 145, followed by England with 109, Netherlands with 40, Cuba with 28 and France with 24.

This non-competitive international show occupied a part of the Hall of Live Poultry and was under the direction of Dr. Willard C. Thompson, New Jersey State College of Agriculture, New Brunswick, N. J. The Hall of Live Poultry was ideally arranged for the showing of poultry. Located right on the lakefront, it was the coolest of all the exposition buildings and was open enough to keep the birds comfortable.

A truly international atmosphere was created in the decorating of this building. Above the birds from each country was a large flag of that nation. Red, white and blue bunting extended down from each post in the hall, and gold and purple striped bunting was draped from each rafter.

### Italian Guinea Fowl

One of the interesting sections of the international show was the Italian exhibit of guinea fowl. This display was composed of 22 birds brought over from Italy by Dr. Vittorino Vanezzi, director of the experiment station at Torio, Italy. The Violet Azure, Lilac, Blue and Pink varieties were particularly beautiful.

The Lilac turkeys, Lillia Di Bologna, also were fine specimens in the Italian display. These birds are about the same shape and size as the White Holland turkey, and have a dusty lilac or lavender colored plumage that is particularly attractive.

### Dutch Send Fancy Fowl

In the Dutch exhibit, the Barnevelder Welsummers and the North Holland Blues were exceptional. The first of these are large birds bred primarily for meat production. The North Holland Blues are one of the breeds that are native to the Netherlands, and look very much like Barred Plymouth Rocks, except that they have white skin instead of the yellow skin which Barred Rocks have. The representatives of this Dutch breed were all from the best breeding farms in Holland.

Other interesting fowls sent from the Netherlands were their Kwaker ducks. These are very rare and Congress representatives hunted all over the country to get a good pair for the Congress. It is said that not more than 100 like these specimens are left in the Netherlands. The Kwaker duck, a "bantam" or miniature of the Pekin duck, is very dainty and delicate.

### Faverolles from France

Salmon Faverolles, table fowl produced especially for the Paris market, were outstanding in the French exhibit. These are utility birds originating from crosses of Houdans, Dorkings and Asiatic breeds. Unlike the other French breeds, they lay tinted rather than white eggs.

Highlights of the English exhibit were the White Sussex and Light Sussex showing the highest development of dual-purpose table fowl. The British educational exhibit was centered around this breed. The size and shape of the Sussex make it very desirable for fattening and this quality combined with its white flesh and legs appeals particularly to the English.

### Cuba Displays Its Cubalayas

Indian Cubalayas, White Cubalayas and Les Marans were placed on exhibit by Cuba. The Les Marans are a little larger than the White Leghorns and have plumage similar to the Barred Rock-Rhode Island Red cross. They lay a very deep brown colored egg.

The Indian Cubalayas are perhaps the nearest breed in appearance to the original jungle fowl. They are practically the same size as the Leghorn, have plumage of brilliant, variegated colors and long, flowing tails that touch the ground. These birds are rather graceful, but are nervous and energetic. This is one of the three new breeds of poultry to be recognized by the American Poultry Association at its Poultry Congress meeting, and the description and qualifications for this new breed will be included in the new revised edition of the American Standard of Perfection.

### Canada Has a Varied Display

Canada, being the largest exhibitor in this division, had birds from a large number of the popular as well as lesser known breeds. Forty breeds and varieties of domestic fowl, four different game breeds, nine breeds and varieties of bantams, two varieties of game bantams, nine breeds and varieties of ducks, five breeds of geese and two breeds of turkeys made up this large Canadian display. Among the breeds of domestic chickens not frequently seen in this country were Redcaps, White-Faced Black Spanish, Black Cochins, Silver-Grey Dorkings, Silver Campines, Cambars, Silver Spangled Hamburgs and many others.

## Competitive Live Bird Show

From New Hampshire in the East to California in the West, from Saskatoon, Saskatchewan, in the North to Havana, Cuba, in the South came birds of all descriptions to compete against each other in the Congress' large Competitive Live Poultry Show. Even birds from England crossed the Atlantic to strut before the judges.

This show, staged in the Hall of Live Poultry, was conducted and operated according to the plans usually employed at such competitive meets in the United States. All classes were based on the American Standard of Perfection. Harry Atkins, Davenport, Ia., was in charge. Every exhibitor who participated in this show received a statuary bronze plaque containing the official seal of the Seventh World's Poultry Congress.

### Master Breeder Awards

In the final sweepstakes, American Poultry Association Master Breeder awards made for the best 10 birds produced and shown by an exhibitor in a class, were as follows:

American Class—Mrs. Donald Donaldson, Decatur, Ga., on S. C. Rhode Island Reds.

Mediterranean Class—Don Alda Farms, Ltd., Toronto, Canada, on S. C. White Leghorns.

English Class — Frank Conway, Indianapolis, Ind., on Buff Orpingtons.

Other Varieties Not Listed Above—Lester Silic, LaGrange, Ohio, on Golden and Silver Campines.

Bantams — Harold Tompkins, Concord, Mass., on R. C. Black Bantams.

Turkeys—Henry Domes, Rickreal, Ore., on White Holland turkeys.

Water Fowl—Gerald Duncan, Washington, Ia., on Brown Chinese Geese.

### Super Awards

Super awards of silver service sets bearing embossed crests of the Seventh World's Poultry Congress for the five best displays of one variety in the show went to the following:

Mrs. Donald Donaldson for S. C. Rhode Island Reds.

Don Alda Farms for S. C. White Leghorns.

Henry Domes for White Holland turkeys.

Frank Conway for Buff Orpingtons.

Sherman Bowden & Son, Mansfield, Ohio, for White Wyandottes.

### Domes Tops the Turkey Show

In the Turkey Show, Henry W. Domes, of Rickreal, Ore., walked off with all grand prizes, having champion tom, champion female, and best display of the show with his White Hollands. Best display in the Bronze division went to Bradmore Farms, Leicester, N. Y.; in Narragansetts, to Sheckler Turkey Farm, Nevada, Ohio; in Bourbon Reds, to Cecil Laughman, Dunraven, N. Y.; in Blacks, to Mrs. W. T. Hall, Denton, Tex.; and in Slates, to Wingert Turkey Farm, Bucyrus, Ohio.

Best display of heavy geese in the competitive live poultry show was that displayed by Gerald R. Duncan, Washington, Ia. The best drake was owned and showed by W. M. Guenther, West Manchester, Ohio. Wayne Hatchery of Wayne City, Ill., showed the best duck; Gerald Duncan had the best gander; and Harold Tesch of Waukesha, Wis., had the best goose.

### Waterfowl Preserve

Other interesting sights in the Hall of Live Poultry were two fenced-in areas, called "Oakhurst Preserve." One of these had a large pool in the center where the water fowl could bathe and swim. In this exhibit were six different breeds of geese, 13 different breeds and varieties of ducks, and two Mute swans. In the other part of "Oakhurst Preserve" were fine specimens of pheasants and pea fowl.

### "White Americans" on Display

The developing of a new brown egg utility breed—White Americans—was one exhibit in the Hall of Live Poultry that created much interest among Congress spectators. This exhibit presented a series of cages, each containing a different generation or family group obtained in the process of building this new breed. Here were shown the steps in blending Dutch Laced Barnevelders and the American Rhode Island Red, including specimens of each original breed, the offspring crosses resulting by mating these together, and pairs of White Americans perfected as far as the seventh generation.

## *Turkey Cycle*

To a member of a Department of Agricultural Economics in a State College of Agriculture the term "turkey cycle" can mean only one thing. To me, however, it has come to mean something entirely different.

"Turkey Cycle" at Sunnygables means a turkey for Sunday dinner every two or three weeks the year around. So far, our cycle has been entirely theoretical, but we still have hopes.

On today, July 12, there were delivered to us at the farm 60 cross-bred turkey poults. They have been put in the room where we raised 55 turkeys last summer, and, when I saw them an hour ago, they were as bright and chipper as could be. They have come so late, however, I'm afraid they won't be ready to eat much before early November at the best.

If such turns out to be the case, we're going to fall short, just a little, of completing our "turkey cycle" this year, because I've just looked out in our farm zero storage box and find that we have only four frozen turkeys left on hand. Under the circumstances, it looks as though we're going to have to ration these birds out one-a-month.

If the poults we have just put in do well, we plan on eating what we want of them fresh during November and December and quick-freezing about 25 for the rest of the year. This should be enough to give us a complete cycle of turkey diet during 1940. Incidentally, our family has come to prefer a quick-frozen turkey to a freshly killed one.

—H. E. Babcock, American Agriculturist, July 22, 1939.

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# Youth at the World's Poultry Congress

MORE than 2,000 delegates from 30 states participated in the youth activities at the Seventh World's Poultry Congress held in Cleveland, Ohio, July 28 to August 7. They came from as far north as Canada and as far south as Florida and New Mexico to participate in poultry judging, demonstration in poultry production and consumption, band playing, and handicraft exhibits.

## *Poultry Judging*

**College Contest** — Twelve state teams, comprising 36 individuals, took part in the Intercollegiate Judging Contest at the World's Poultry Congress, Saturday morning, July 29. The young men from agricultural colleges of the country competed on four main points — exhibition judging, selecting of breeders, judging of live market chickens and judging of dressed market chickens. A total of 56 birds was judged. These birds were previously judged and placed by experienced judges and the rating of the contestants was checked against the established order.

Winners were classed in three divisions as Superior, Excellent and Good. Team standings were as follows:

Superior—Missouri and Oklahoma.

Excellent—West Virginia, Texas, Illinois, Minnesota, Kansas and Iowa.

Good — Pennsylvania, Massachusetts, Connecticut and Florida.

• • •

**FFA Contest**—Some 35 teams competed in the Future Farmers of America poultry judging contest. They received the following ratings:

Superior — Florida, Indiana, Missouri, Oklahoma, Oregon.

Excellent — Connecticut, Georgia, Illinois, Iowa, Kansas, Louisiana, Maine, Massachusetts, Minnesota, Nebraska, Montana, New Mexico, New York, North Dakota, Ohio, Pennsylvania, South Dakota, Texas, Utah, Vermont, West Virginia, Wisconsin.

Good — California, Maryland, Michigan, Mississippi, Virginia, Delaware, Kentucky, New Hampshire.

## *Demonstration Contests*

Demonstrations dealing with production and consumption phases of the poultry business were held in a canvas covered court in the Hall of States and Nations. Four stages were used, so onlookers could sit in on whatever program appealed to them most. The boys handled the production demonstrations, while the girls dealt with poultry and egg consumption subjects.

• • •

**4-H Consumption Demonstrations**—Nineteen teams of girls participated. Subjects ranged from "Value of Eggs in the Diet" (Kansas) to "Preparing Egg Beverages" (Georgia) and "Stream-lined Chicken" (Montana). The teams were rated as follows:

Superior — Kansas, Minnesota, Washington.

Excellent — Georgia, Indiana, Massachusetts, Missouri, Montana, Nebraska.

Good — Michigan, Mississippi, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, S. Dakota, Virginia, W. Virginia.

• • •

**4-H Production Demonstrations**—Twenty-four states were represented. Subjects ranged from the control of external parasites to the use of the blood stained antigen test. The teams were given the following ratings:

Superior — Connecticut, Indiana, Montana, Ohio, Pennsylvania, South Dakota and Wisconsin.

Excellent — Delaware, Illinois, Iowa, Massachusetts, Maryland, Minnesota, Nebraska, North Carolina, Oklahoma and Oregon.

Good—Georgia, Kansas, Michigan, Mississippi, Missouri, New York and Virginia.

**FFA Demonstrations** — The teams were given the following ratings:

Superior—Delaware and Indiana.
Excellent—Illinois and Michigan.
Good—Georgia, Minnesota, Missouri and New York.

* * *

The tantalizing smell of genuine southern fried chicken set a lot of mouths watering during one of the consumption demonstrations as a couple of capable Virginia lassies, Helen Terry and Bessie Francis, prepared the savory dish right in front of an enthusiastic crowd. The two girls convinced the audience that a southern chicken dinner should consist solely of southern fried chicken.

* * *

Formation of the National Collegiate Poultry Club was one of the outgrowths of the Congress. Objectives: to bring about a mutual understanding and a closer relationship between the poultry clubs at the various agricultural colleges.

Officers elected: Alex G. Warren, Texas A. and M. College, president; Denver D. Bragg, West Virginia University, vice-president; William Rhodes, Oklahoma A. and M. College, secretary-treasurer; E. M. Funk, University of Missouri, adviser.

* * *

Many different methods were employed to raise funds for sending judging and demonstration teams to the Congress. The Newark, Del., FFA chapter team was sent through funds contributed by state and local FFA chapters. Local chapter funds were contributed by members who earned it by caponizing and culling poultry.

New Mexico FFA boys came to Cleveland on a bus provided by their local school board. They paid their own food expenses. Kansas boys came on funds raised through the sale of Congress tickets.

* * *

By strange coincidence, one of the two top teams in the collegiate poultry judging contest consisted of Cleveland boys, but they were from Cleveland, Oklahoma. Raymond Butler, Harry Hathaway and Elton Johnson, who comprised that team, had been judging together for five years.

* * *

Boy Scouts and their proteges, the Cub Scouts, exhibited examples of handiwork in wood and leather. One Negro troop had an interesting display on printing. A box of type and a small hand press were in operation just about all the time. FFA and 4-H clubs, in their exhibits, emphasized the moral training their members obtained through activities sponsored by the local chapters and clubs.

* * *

4-H and FFA bands parading throughout the grounds gave a sort of a "Fair Day" atmosphere to the Congress. A girls' Scotch bagpipe band from Saskatoon, Sask., Canada, performed on the grounds separately and in conjunction with a troop of Royal Canadian Mounted Police. The band in their scarlet coats, cocky hats, and plaid kilts skirled their way into everyone's hearts.

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A MID-NORTH Chicago eating spot which is as modern and yet as old fashioned as Henrici's, when that famous old Teutonian place was really Henrici's, tells me gleefully and to my own glee that the "swing omelet" comes up for service as often as anything else. Popularization of the swing omelet will give a lusty swing to the sale of eggs in restaurants.

—Kathryn Bele Niles, U. S. Egg and Poultry Magazine, June, 1939.

# Consumer Activities at the Congress

PROBABLY no other phase of the World's Poultry Congress received more attention and caused more comment from the thousands of visitors and from the newspapers and magazines than did the Consumer Program concocted by Mrs. Kathryn Bele Niles, Director of Foods and Nutrition for the Institute of American Poultry Industries, and her corps of able assistants throughout the country.

### The Transparent Kitchens

The Transparent Kitchens, also called the "Temple of Taste," were the center of great activity throughout the 11 days. These were located at the lower end of the Hall of Industry. This most attractive, well-lighted "Temple of Taste" consisted of three separate kitchens with a large, enclosed section in the center where the foods for all demonstrations were kept in refrigerators before being distributed to the various kitchens for cooking. Naturally, everything was always "spic and span."

Each kitchen had its own stoves, refrigerators and demonstration tables. Over each table and stove was a large mirror tipped at an angle so the visitors at a distance from the kitchen could see how the dishes appeared. Glass equipment was used wherever possible in cooking in order that the visitors could see just how much water was added and how the food looked in the container.

The kitchens were known as the General Electric Kitchen, the Westinghouse Kitchen and the Magic Chef Kitchen. Supervisor of all three kitchens was Mrs. E. E. Stephenson. Miss Elizabeth Madigan and Miss Kathryn Thiele were in charge of the General Electric Kitchen; Mrs. Julia Kiene and Miss Marian Hout, the Westinghouse Kitchen; and Mrs. N. E. Confer, the Magic Chef Kitchen.

Each demonstrator had a small movable microphone that she could attach to her dress to carry her voice to the audience in front of her through two loud speakers above her head. This left her hands free to carry on the demonstrations while she talked. All three kitchens were being used at the same time during a large part of the Congress.

Everything from appetizers to desserts were made at the Transparent Kitchens. Among the tasty delicacies were roast poultry of every kind, fricassee of chicken, chicken pie deluxe, yolk sponge cake, Boo-Loo-Cai—pineapple chicken, egg canapes, broiled eggs, egg peptail, and hundreds of other tempting dishes prepared with poultry and eggs.

### Florida Entry Wins Menu Contest

Mrs. Homer Hixson of Gainesville, Fla., the wife of an instructor in the University of Florida, won the first prize of $1,000 in the Egg-Meal Menu Contest. This contest was the outstanding highlight of the entire consumer program. Mrs. Hixson, a graduate of home economics from Oklahoma A. and M. College, and the mother of a five-months old baby daughter, came by bus at her own expense to take part in this big event.

Further prize winners were Miss Marie Hoffman, of Faribault, Minn., who received $250; Mrs. W. E. Otis, of Lansing, Mich., who won $150; and Mrs. Paul R. Allen, of Weston, Mass., who won $100.

According to the judges, Mrs. Hixson's menu was not by any means the most elaborate of all entered in the contest. In fact, it was quite simple. However, the flavors and foods were well combined, it made a very tempting sight, and the dishes were carefully seasoned and well selected. There was a nice balance of food principles in Mrs. Hixson's menu, which is as follows:

Tomato juice cocktail, chicken liver omelet, brown potatoes, asparagus with Hollandaise sauce, lettuce with French dressing, whole wheat muffins, fruit roll and coffee.

### Contest Causes Nation-wide Comment

The eyes of thousands of housewives were focused on this contest before the Congress ever opened. In fact, to enter, it was necessary to send in a menu for an egg dinner to the State Congress committee more than a month before the Congress opened its doors. The five best menus from each state were then chosen and submitted to Mrs. Niles and her contest committee for selection of the 20 best menus.

These 20 individuals whose menus were rated the best by the consumer contest committee were then requested to appear in Cleveland and prepare their dinners at the Transparent Kitchens before the judges, Congress officials and thousands of Congress visitors. Some women came at their own expense, some were financed by their clubs, and some had their expenses paid by the state.

### Winner Announced at Garden Festival

Announcement of the Egg-Meal Menu Contest winner was made on Friday afternoon, August 4, at a large tea party and garden festival held in Cleveland's Horticultural Gardens on the lake front. This affair had been in the making for several months under the honorary chairmanship of Mrs. Harold H. Burton, wife of Cleveland's mayor, and attracted almost 10,000 visitors.

Ten different nationality tables were spread with tea and cookies of foreign recipes, presided over by hostesses in their native costumes. The garden assumed a really international atmosphere.

### Chefs Prepared Fancy Dishes

Continuous demonstrations on the preparation of egg and poultry dishes were carried on daily by trained home economists from 10:00 a.m. to 9:00 p.m., and prominent Cleveland chefs took the spotlight at various times when they showed how certain fancy dishes are prepared.

Chef Jacques Gallo of Hotel Statler in Cleveland attracted crowds to see him prepare eggs Florentine and other delicious dishes. Chef John Feitz of Hotel Cleveland also was surrounded by huge crowds when he demonstrated his skill in cooking a breast of chicken a l'Eugenie, omelet souffles and other attractive dishes and showed how to carve a turkey properly. Hotel Hollenden's Chef August Erb showed crowds of onlookers how to prepare chicken saute Marengo and many other tempting dishes.

### Many Phases of the Industry Covered

During the afternoon of each day, July 31 through August 6, the Consumer Program had well-known speakers from all over the country come to discuss problems concerning many phases of the industry, from raising chickens, ducks and turkeys to carving the bird at the dining table. These talks were given in the Music Hall, adjacent to the main auditorium, and were preceded by organ music; programs by Walberg Brown String Ensemble, which has been on the air over national hookups longer than any other similar group; by nationality dances presented by young people from greater Cleveland; and by Koko, the world-famous clown. Fashion shows and food demonstrations were also presented in connection with this phase of the Consumer Program.

### "Romance in Recipes"

A description of the consumer activities would not be complete without a few words about the Congress' official cook book, "Romance in Recipes—Eggs and Poultry Around the World." This book is a fine compilation of practical poultry and egg recipes from many nations. It contains 100 pages, is well bound so as to lie flat when opened, and has a most attractive blue colored, moisture-proof cover. Interesting marginal sidelights decorate its pages, and it is exceptionally well illustrated.

Mrs. Kathryn B. Niles, the author, spent 18 months in correspondence and travel in acquiring the information she has presented in this book. Three personal trips were made to as many countries to get the material she needed.

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## *Who Discovered Sex-Linkage?*

If Dr. A. L. Hagedoorn, the famous Dutch geneticist, is right, sex-linkage was not discovered by scientists but by peasant poultry farmers round the town of Assendeft, in Holland, and in the Belgian Kempen district.

In his new book, "Animal Breeding," Dr. Hagedoorn says that it was the discovery that these poultry farmers were using sex-linkage commercially as far back as 1906, when he was a student in Paris, that set him studying the phenomenon.

With characteristic shrewdness the Belgian poultry farmers, having found that Gold Campine cocks crossed with Silver hens gave gold pullet chicks and pale cockerel chicks, kept the pullet chicks for themselves and planted the cockerel chicks on the French.

Large numbers of flat boxes of these chicks were sold in the Halles, the famous Paris market, the fact that they were all cockerels being discovered by the buyers in due course.

—Feathered World, June 30, 1939.

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¶ ROOSTERS are worth considerably more, comparatively, than they were ten years ago. Then they brought about a third as much as spring chickens. Today they bring about half as much.

Soup makers must be given a lot of credit for making a real market for roosters. You probably remember when canned soup meant tomato soup. Today you can walk into a grocery store and buy almost any kind of soup you want and chicken soup is one of the most popular. Because, in most cases, roosters are used for making soup, the demand for them is greater than it used to be.

—Frank Priebe's Weekly Letter, June 10, 1939.

# POULTRY RESEARCH

## Green Vent in Undrawn Poultry

Green vent, a condition which occurs in poultry while being held under refrigeration prior to drawing and freezing, was the subject of a study by John T. R. Nickerson and Gerald A. Fitzgerald, The Birdseye Laboratories, Boston, Mass. The results are published in the proceedings of the Seventh World's Poultry Congress.

The green vent condition, also referred to as "green-struck chickens," was caused by hydrogen sulfide gas produced in the intestines of chickens by bacterial decomposition of the intestinal contents. The appearance of the green coloration was somewhat faster in the white skinned chickens than in those with yellow skins, but it is believed that the yellow color may have tended to mask the green discoloration at first.

It was observed also that green vents occurred more often in milk-fed poultry than in those which were not given milk. The intestinal contents of the birds on milk were more liquid than those on a dry feed before killing, leading the investigators to believe that the liquid contents of the intestines favor a greater production by hydrogen sulfide gas.

## Vitamin D Requirements for Young Turkeys

Growth rate of turkeys is greatly influenced by vitamin D. Turkeys in one experiment receiving an ample supply of vitamin D weighed 93 per cent more than those on the basal diet at 4 weeks. T. H. Jukes, University of California, and T. D. Sanford, F. E. Booth Co., present this conclusion in The Journal of Nutrition (Vol. 18, No. 1).

Satisfactory growth and bone formation in the complete absence of sunlight occurred when the ration contained four-tenths of 1 per cent of a fortified fish oil.

While the investigators did not believe it wise to state precisely the vitamin D requirements of turkeys in A.O.A.C. chick units because of the possibility of a difference in response between chicks and turkeys, they stated that a value of 200 A.O.A.C. chick units of vitamin D per 100 grams of feed would be sufficient to meet the requirements of turkeys for the first 4 weeks to produce satisfactory calcification in the complete absence of sunlight. This would be the same as feeding one-half of 1 per cent of a fortified fish oil containing 400 A.O.A.C. chick units of vitamin D to the gram.

## Chick Anti-dermatitis Factor Varies with Different Yeasts

The amount of chick anti-dermatitis vitamin (pantothenic acid) in yeast varies with the medium in which the yeast is grown, according to the work of W. H. Peterson and C. A. Elvehjem, University of Wisconsin, reported in The Journal of Nutrition (Vol. 18, No. 2).

Yeast grown in grain wort gave protection when fed at a 2 per cent level, molasses yeast at 4 per cent and glucose-salts yeast at 6 per cent.

Commercial bakers and brewers yeasts also protected at the 2 per cent level.

## Excess Calcium and Perosis

An excess of calcium rather than an increase of phosphorus alone in the ration tends to aggravate perosis or the slipped tendon condition, according to H. S. Wilgus, Jr., and A. R. Patton, Colorado Agricultural Experiment Station, in The Journal of Nutrition (Vol. 18, No. 1).

Their conclusion from experimental evidence is that the excess insoluble calcium phosphate tends to remove the manganese from solution in the intestines. This decrease in the manganese in the intestines of chicks was observed after feeding steamed bone meal.

## Curled Tongue in Young Turkeys

An instance of curled tongue in young turkeys is reported by C. B. Hudson, N. J. Agricultural Experiment Station, in the Journal of the American Veterinary Medical Association for June, 1939 (Vol. 47, No. 6).

The poults were hatched from eggs which were purchased by the grower. Soon after the poults started to eat, the owner observed that they were having difficulty in taking food and water. Examination revealed that the end of the tongue was curled back. It has not been established whether this disease is inherited or acquired.

## Resistance to Roundworms

Kind of feed, age of the birds and the breed of fowls are factors in the degree of resistance which chickens have to infestations of the common roundworm (A. lineata), according to James F. Ackert, Kansas Agricultural Experiment Station, in the proceedings of the Seventh World's Poultry Congress.

Inclusion of skim milk and meat meal as supplements to a basal cereal ration increased the resistance to roundworm infestation and also resulted in a better growth rate of the chickens. Replacement of meat meal with peanut meal resulted in slower growth and also less resistance to roundworms.

Age up to maturity is a factor in the resistance of chickens to both roundworms and tapeworms, the older birds being more resistant than the younger ones.

Heavier breeds and varieties such as Rhode Island Reds, White Plymouth Rocks and Barred Plymouth Rocks were found to be more resistant than the lighter White Leghorns or White Minorcas, but differences as to susceptibility and resistance may occur among strains in a breed.

## Sulphur Used for Treating Crop Worms in Turkeys

Commercial flowers of sulphur, fed at the rate of 5 per cent in the regular mash for a period of three weeks, resulted in a progressive improvement of turkeys in which the gullet and the crop were infested with a parasitic worm (capillaria contorta) according to M. W. Emmel, Florida Agricultural Experiment Station, in the Journal of the American Veterinary Medical Association for June, 1939 (Vol. 47, No. 6).

Improvement was noted in four days after treatment was started, and additional birds failed to develop symptoms after three days. Recovery occurred in all affected birds which were able to eat when treatment was started.

Characteristic symptoms of an infestation are indisposition, weakness, droopiness, emaciation, frequent swallowing, and a penguin-like position of the body. In the several large flocks studied, infestation appeared first in the older birds; later those of all ages were affected. The course of the disease was from five to twelve days after the symptoms were first noticed.

## Identifying Barred Rock Chick Sex by Down, Shank, Beak Color

Approximately 90 per cent accuracy can be obtained in identifying the sex of Barred Rock baby chicks in most flocks by the color of the down and shanks, report Joseph P. Quinn and Charles W. Knox of the Bureau of Animal Industry, in Poultry Science, July, 1939 (Vol. 18, No. 4).

They found that male Barred Rock chicks had silver and black heads; females had white and black heads. Males usually had larger head spots, which were silvery white in contrast to smaller spots on females, with contrasting black and white in down on head.

Males had silver gray, silver black or dull black on the back; females had a deep brilliant black. Both males and females may carry silver striping on the back. Male chicks were silver gray on the abdomen, usually with two white spots; females were dark ashy gray with one or two spots, black with white spots, or entirely white on the abdomen.

Males had yellow, yellow ringed or dusky yellow shanks; females had black or dark colored shanks with the dark pigment usually broken off abruptly. Males had yellow toes or yellow ringed toes; females had black or dark toes with yellow appearing at the extremities. Beak color proved to be a much less reliable index of sex than color of the other parts.

## Identifying Hybrid Chick Sex by Down Color

An accuracy of 64.9 per cent in sexing Barred Rock-Rhode Island Red crossbred chicks according to color of the down was attained by Joseph P. Quinn and Charles W. Knox, U. S. Department of Agriculture, and reported in Poultry Science, July, 1939 (Vol. 18, No. 4). Shank color and beak color proved of little value.

The investigators found that about 79.0 per cent of the silver striped chicks were females and 90.7 per cent of the chicks with brown heads were males. In chicks with least amount of white, the larger proportion was males and in chicks with greatest amount of white in the down, the larger proportion was females, reversing the situation found by the same investigators to exist in standardbred Barred Rock chicks.

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◄◄ IF YOU are an average American, you eat from ten to thirteen times your weight in food a year, or something over a ton. This includes, among other foods, according to Government figures: 329 pounds of milk, 17 pounds butter, 18 dozen eggs, 62 pounds beef, 12 pounds coffee, 102 pounds of sugar, 180 pounds potatoes, 167 pounds fresh fruits. Many individuals, however, do a lot better than this. Some, for example, will eat 800 eggs per year and a good many will double up on several of the other items.

—Utah Poultry Co-operator, June, 1939.

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# Vitamin Requirements in Poultry Feeding

By R. M. Bethke
Ohio Agricultural Experiment Station
Wooster, Ohio

*Condensed from a Talk*

A GREAT deal of progress has been made in the scientific feeding of poultry within the past 15 or 20 years. The vitamin field has, in all probability, seen the greatest advancement.

Vitamins are essential for health and production. They are just as indispensable as minerals, proteins, water, carbohydrates, fats, etc., but not any more so than these other feed ingredients.

Someone has made the statement that vitamins are only a "fad or craze" of the past quarter century. This individual presumably bases his argument upon the fact that we hatched and brooded chicks, had them lay eggs, and in turn had some of these eggs hatch long before we knew anything about vitamins.

We must not, however, lose sight of the fact that the poultry industry itself is in a large measure to blame; in other words, the poultry industry has created the present-day vitamin problem.

You ask why. We have moved the bird indoors, depriving her of insects, worms, sunshine, and green feed. In addition to that, we have seen considerable change in the milling, processing, and manufacturing of poultry feedstuffs. These changes have also created a vitamin problem.

In addition, we expect our birds to lay 200 or more eggs a year and expect 75 per cent or more of these eggs to hatch. In other words, we expect our birds to do more. They must do more, and the more we expect of them, the more of a vitamin problem we will have.

You ask the question, "Why did we create a vitamin problem because we moved the bird indoors?" My answer is that as soon as you moved the bird indoors you deprived it of direct sunshine, which supplies one vitamin factor. You deprived it of green grass, which supplies many vitamin factors. The poultry raiser must assume the responsibility of putting these vitamins in the feed so that the bird in turn can get them. In short, the present-day poultrymen and poultrywomen must know their vitamins.

### 10 Vitamins or Factors for Poultry

Science has shown that poultry require about 10 different vitamins or factors. We have Vitamins A, $B_1$, D, E, G, K, the chick anti-dermatosis factor, sometimes referred to as the "filtrate" factor, the anti-gizzard erosion factor, and the anti-encephalomalacia factor which, for lack of a better name, we will call the "crazy chick" factor. Then there is a comparatively new growth and reproduction factor, which is required for growth and hatchability.

We know that there are other vitamins in existence, in addition to the 10 vitamins or factors which I listed; but presumably these are not required

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by poultry or have not been shown to be required up to the present time. Among these vitamins we have vitamin C, the anti-scurvy factor, commonly found in citrus juices.

Vitamin $B_6$, the "P-P factor," preventing pellagra, is needed by humans, dogs, pigs, but nothing has come to light as far as chickens are concerned.

Factor W and a so-called "grass juice factor" found in tender, succulent grass, and is apparently required by some species.

From this imposing list of ten vitamins or factors required by poultry, the average poultry raiser needs to know, for all practical purposes, that only special consideration need be given to vitamins A, D, and G. Most of the other factors which are required are usually furnished in adequate amounts in the commonly used poultry feedstuffs, especially those of good quality.

### Vitamin A for Growth

Vitamin A, as you have been told on probably hundreds of occasions, results in lack of growth. Lack of it causes eye lesions in birds. It is sometimes referred to as the "nutritional roup" factor. In short, the growing chick and the laying bird must have vitamin A if they are to exist.

We have two forms of vitamin A—a colored form and a colorless form. The colored form is commonly found in plants or in the plant kingdom, particularly in green plants. It is chemically known as carotene. It was first isolated from carrots from which it derived its name. It is an orange-yellow pigment. The colorless form is found in fish oils.

Work has shown that either of these two sources can serve as a source of vitamin A for poultry. In other words, you can use the colored form (carotene) or you can supply the vitamin A requirements of birds in the colorless form through fish oils.

How much do birds require? We have a measuring stick for vitamins. We do not speak of them in terms of pounds, ounces, grams, or inches—we speak of them in terms of units. The rat is used as the standard. It has been shown, for example, that the minimum practical requirements for growing chicks is 1800 vitamin A units per pound of feed.

Research work has shown that the laying bird has a somewhat higher requirement. I would put the practical minimum requirement at around 2250 or 2500 per pound of feed. If you are interested in producing eggs which are relatively rich in vitamin A, you will have to increase the vitamin A content in the feed.

Unfortunately, our cereal by-products, other grains, common meat scraps, vegetable protein concentrates, milk, milk substitutes or milk equivalents, do not supply vitamin A. We must look to some other source. The practical sources, in my estimation, are alfalfa meals and fish oils, or both. Alfalfa meals vary tremendously in their vitamin A, activity or in their carotene content, anywhere from zero up to several hundred thousand units per pound.

It would require approximately 5 per cent of the total ration of a high-grade sun-cured meal to meet the vitamin A requirements. A high grade dehydrated meal would require in the neighborhood of 2½ to 3 per cent—that is a practical minimum requirement.

### Loss of Vitamin A

Another factor which we must take into consideration in talking about vitamin A is the question of loss. When we mix fish oils into a feed, when we mix alfalfa into a feed, we experience a certain loss. The extent of that loss will depend upon storage conditions, upon the length of storage, and the kind of ration.

If we are going to keep that feed any length of time, we should allow for loss that takes place in storage. The statement has been made that if you add fish oil or, for that matter, alfalfa to a ration, in a few weeks all of the vitamin A activity has disappeared or has dissipated itself. According to our experience, this is not true. We find a loss and a rather rapid loss at first, but we still find some vitamin A activity in a feed which has been stored for a period of six months in burlap bags at room temperature.

### Vitamin D is Sunshine Factor

What about vitamin D? I like to refer to vitamin D as our "sunshine" factor. In other words, direct sunshine supplies vitamin D automatically to the human species and to poultry, as well as to other livestock. As soon as we remove them from direct sunshine exposure, we must assume the responsibility of supplying vitamin D.

As you know, the practical source and the most convenient way of doing it is by means of fish oil or fish oil equivalents. We should not lose sight of the fact that there are different forms of vitamin D.

### Standards of Quality

Not all of these forms of vitamin D are equally effective for poultry. Accordingly, we should exercise some care in the kind of oil that we are going to feed to our birds. Fortunately, there has been developed an official test for vitamin D, commonly referred to as a "chick test." You have probably seen the letters "A.O. A.C." on cod liver oil drumheads. That has reference to the official test.

Personally, I see no excuse for any poultryman or poultrywoman who is taking his job seriously to feed a non-tested oil. Again, I would recommend that you pay particular attention to the unitage and potency of the oil you are buying, and that it be expressed in terms of "chick units" rather than "rat units."

How much do birds require? From the majority of experimental work that has been reported on the vitamin D requirements of birds, I would say that the growing chick requires in the neighborhood of 175 chick units per pound of feed.

What does that mean in terms of fish oil? Let's take straight cod liver oil that is guaranteed to contain 85 units. If you used one-half of 1 per cent of that straight cod liver oil, you would meet the requirements. If you used a fortified oil which contained 400 units, two pounds of that fortified oil per ton of mash would supply 175 units per pound of feed.

Laying birds have at least two times the requirements of chicks. So I would say that your practical recommendation as far as laying birds are concerned would be in the neighborhood of 350 units per pound of feed, or you would have to add again as much oil in the case of laying birds as in the case of chicks.

### Place of Vitamin G

What about vitamin G? Vitamin G is one of our newer members. We know what it is chemically. The chemist calls it "riboflavin."

Undoubtedly most of the ladies in the audience have seen riboflavin and did not recognize it. You ladies have had occasion to separate the whites from the yolks of eggs, and not needing the whites immediately, you have put them in a glass or a Mason jar. If you had looked at that accumulation of egg whites carefully and at an angle, you undoubtedly would have noticed that it was not transparent. There was a little yellowish-greenish tinge to that egg white. That tinge was riboflavin, or vitamin G.

Vitamin G deficiency in chicks manifests itself in the form of a nutritional paralysis and that can be easily recognized and distinguished from others, inasmuch as the chicks will walk on their hocks with the toes curled inward. It usually appears some time after the third week.

In the case of laying birds, a vitamin G deficiency results in decreased hatchability.

### Sources of Vitamin G

Where do we find vitamin G? It is present in eggs, especially if the birds are well fed. We find it in milk, milk products, succulent grass. If that grass is dehydrated and properly taken care of, we will preserve most of the vitamin G or riboflavin present. It is present in the alfalfa meals or alfalfa leaf meals.

How much do birds require? According to work, it has been shown that chicks require in the neighborhood of 1300 units per pound. Laying birds, merely for egg production purposes, require about one-half of that amount, or 650 units. For good hatchability it requires somewhat more, about 1200 units per gram.

By and large, I would say that you will meet the vitamin G, or riboflavin, requirements of growing chicks and for hatchability purposes if you will include 5 per cent of a good grade of milk or its equivalent and 5 per cent of a high quality alfalfa meal in the total ration.

If you are feeding grain with your ration, you have to take that into consideration, because grains and cereal by-products are not good sources of vitamin G. They supply some, but we primarily have to depend upon milk, milk products or their equivalents, and alfalfa meal to insure that our rations contain adequate amounts of vitamin G.

If you are interested merely in egg production, I would say, roughly speaking, one-half or 2½ per cent of milk and 2½ per cent of alfalfa, or somewhere in that neighborhood.

But don't expect those eggs to hatch very well! If you expect good hatchability from those eggs, you must increase the milk or alfalfa intake, preferably both.

### Vitamin $B_1$ Widespread

Just a word about vitamin $B_1$. It has been shown to be required by poultry. If you feed a bird or a chick a ration deficient in vitamin $B_1$ it will develop nervous lesions. You will notice retraction of the muscles of the neck — so much so that frequently these birds will turn a back somersault or a cartwheel. Fortunately, our poultry feedstuffs, especially grains and cereal by-products, abound in Vitamin $B_1$.

The average good poultry ration in which whole, sound grains or ground, whole, sound grains and cereal by-products are used, such as wheat brans, wheat middlings, and alfalfa meal, will carry from two to three times the requirement of $B_1$ for birds. In a practical sense, we can forget about it because we automatically take care of the vitamin $B_1$ requirements.

### Vitamin E Required

Within recent years we have heard a great deal of discussion about vitamin E. Work done at the University of Illinois has definitely shown that poultry require vitamin E, commonly referred to as the "anti-sterility" factor. Vitamin E is found in grains and cereal by-products. Like vitamin $B_1$, it is found in the germ.

A good poultry ration made from good quality materials, including grains either whole or ground, as long as they are sound, with the customary amount of wheat by-products in addition to high quality alfalfa meal and the other ingredients commonly used, will meet the vitamin E requirements of growing birds, laying birds, and breeders.

Very recent work in the University of California substantiates such a statement. They did not experience any increase in hatchability by the addition of vitamin E in the form of wheat germ oil to a good quality poultry ration.

We have heard a great deal about wheat germ oil and range paralysis. Again, research work from as many as eight or nine different institutions in this country has shown that wheat germ oil is not an insurance against range paralysis or that it will cure range paralysis after it has once set in.

### Chick Anti-Dermatosis Factor

What about the chick anti-dermatosis factor? It is sometimes entitled the "anti-pellagra" factor or the "filtrate" factor. From a deficiency of that factor, you will get incrustations appearing at the corners of the mouth, granulations around the eyelids, and frequently the bottoms of the feet will develop scabs or the skin will break.

If you are using a good poultry ration, as I described before, and are using the recommended amounts of milk and alfalfa that you should in order to supply adequate amounts of vitamin G, or riboflavin, the chances are 100 to 1 that you are automatically going to take care of the anti-dermatosis factor requirements of the growing bird, the laying bird, and the breeder. This factor is distributed to a certain extent in our cereals and our grains. Milk and alfalfa are good sources of this particular factor.

### Crazy Chick Factor

What about the anti-encephalomalacia factor? If a deficiency occurs with regard to this factor, we note that the chick manifests what is commonly termed "crazy symptoms." It loses its sense of direction. If it is disturbed, it will probably keep on going until it hits something. If a chick suffering from those symptoms is examined, you will find brain lesions.

Work has been reported to the effect that vegetable oils, corn oil, cottonseed oil, and particularly soy bean oil, supply this particular factor. We do have outbreaks of this disorder in certain localities.

I don't know of anything in particular that you could add to insure against it. My recommendation is to use a good, practical chick starter, adequately fortified in all factors. If you do run into it and experience the first symptoms, I would suggest that you either make a radical change in feed or dilute your feed with bran or cornmeal for a period of seven days to 10 weeks in order to definitely delay the development of further lesions, and then go back and proceed with the regular mash that you have been using.

### Vitamin K Aids Clotting

Just a word about vitamin K—This is known as the "anti-hemorrhagic" factor. That simply means that it has something to do with the clotting of the blood. We can feed birds rations which are deficient in this factor, and if they lose as much as a feather, they actually might bleed to death.

I have seen birds which appeared

to be perfectly normal, and in the process of weighing, they fell over and were dead. When they were opened, we noticed that the abdominal cavity was filled with fresh blood. As soon as there is a rupture in a blood vessel, there is not enough of this particular factor present in the feed to cause the blood to set. That is why these birds bleed to death.

It is nothing to become alarmed about as far as the practical poultryman is concerned, for the simple reason that green plant tissue and alfalfa meal abound in this particular factor. If you are using as much as one-half of even 1 per cent of alfalfa meal in your rations, you are going to take care, as far as we know, of the vitamin K requirements of growing birds and laying birds.

In summary, I want to emphasize that vitamins are important in poultry feeding, but they are not any more important than the minerals, proteins, water, or any other factor that goes to make up a poultry ration.

If you are going to be successful in growing a good crop of pullets or in raising broilers or in having your birds produce, and in turn have the eggs which those birds have laid hatch well, and the chicks live — you will have to feed a complete poultry ration which is not only balanced but complete in all respects. Vitamins are only one factor of this complete poultry ration.

◂◂ MIKE GULICK, of Wood River, Ill., feels sure that he is the champion egg-eater of Illinois, according to the June issue of The American Magazine. He says he is 60 years of age, in excellent health, and is willing to prove at any time that he can eat six dozen eggs within a time limit of 20 minutes. Furthermore, he would like to propose an egg-eating contest with a Mr. Tillinghorst, of Wickford, R. I., who claims that he is the champion egg-eater of Rhode Island, to demonstrate and "settle the fact that a citizen of Illinois can eat more eggs than a citizen of Rhode Island." Gulick believes that such a contest would end the old belief that a person should not eat more than a limited number of eggs.

◂◂ FOR the past month, Vice President Garner has been hankering to get home to see his 99 bantam chicks. "I wish Congress would quit fussing around so I could check up on these new banties," he told friends. The Vice President specializes in bantams at the insistence of his wife, secretary and general manager, because the chickens and pheasants were said to have run up too much of a bill to suit Mrs. Garner. The bantams were a compromise.

—Poultry Item, June-July, 1939.

◂◂ THE CLICKING that John Pyle, Kennett Square, Pa., farmer, heard in the rear of his car when he returned from town recently was not in the gears. It was just bantam chicks emerging from the shell. A surprised mechanic, lifting up the rear seat, discovered the bantam hen, apparently undisturbed by the trip to town, helping her brood to see the light of day.

—Newspaper article.

# Diary of a Poultryman

By P. S. White

Wayne County, Ohio

**August 1**—"Buzzy" Grossman and his gang of painters started work on the house. The house, the barn and the storage building will all be given two coats of paint. All will be painted a light gray, but the house will be trimmed in white with black sash.

The regular fall cleaning has started in on the home stretch. As usual, we started on the first floor of the barn. The birds have gradually been culled and the ones to be retained have been distributed on the second and third floors.

**August 2** — There was very little sleep for Kid White and me last night. In fact, none at all. We stayed out on the range until daylight watching for that varmint. Nothing happened; it didn't come around. Probably it wasn't hungry, but there is usually a lull before the storm hits. But we are two sleepy people today. Both of us took a nap this afternoon, in order to get ready for tonight. This chicken-killing has got to stop, I am losing money. If we only knew what we were trying to scrap, it wouldn't be so bad. It is a phantom killer and the old-timers are at a loss to determine what it is.

**August 3** — Donnie found a hole under one of the pines last evening. We gave it a good shot of cyanide and plugged it with a burlap bag and soil. There was enough cyanide put in the hole to kill all the varmints clean down to China. Kid White and I spent the night on the range. Nothing happened again, so maybe we have exterminated the gentleman. I surely hope so.

Cleaning in order to do a good job is a slow process. We figure a week to the house. This year we have extra help, and we should get through in four days. It looks as if we will be able to move the birds from the second floor down to the first tomorrow night. We do all of the moving at night.

**August 4**—At 12 o'clock last night, I ate a lunch out on the range, meanwhile keeping one ear to the ground and the other in the air listening for varmints. Daybreak, and Harold came out with the truck and empty coops for broilers. I ate breakfast after I came home from the auction. Breakfast and sleep; what I need is sleep. I think I could sleep for a week. But tonight we move the birds to the first floor. It is ready, cleaned, disinfected, fresh litter and excelsior in the nests and mash and oyster shells in the hoppers.

**August 5**—I believe we got something in that hole; it might have been a coon. No chicks lost last night and the hole hasn't been opened. It is getting to the point now that if we lose a bird, it is very apt to be a pullet, for the cockerels are being thinned considerably. Only 300 were sold yesterday, and next week there will be about the same number. I think I had better stay out on the range again tonight and not take any chances. I don't like to take chances, for when I do, the odds are about 10 to 1 that I get beat. But I have been smacked down so often in this game that I can get up laughing. I guess a fool doesn't know when he is beaten.

Unpublished material prepared for Everybodys Poultry Magazine

Several folks in town asked me if the chicken-killing was still in progress. All seemed relieved to learn it had stopped or at least slowed down.

**August 6**—We took today to clean up the ranch. The boards were cleaned and the droppings were scattered on the soy beans. I don't suppose there is another bean patch in Ohio that is top dressed throughout the growing season. The beans are well nigh waist high, but the fertilizer is scattered on them just the same. I might add that their color is anything but pale. In fact, they have the richest green color of any beans I have ever seen. They are so green they are well nigh black. There is power in chicken manure—power to make things grow. If we can accomplish as much during the next few weeks as we have this week, we will be sitting Jake.

**August 8**—Just what I thought, that varmint was back last night. It was the first night that I have slept in a bed in what seems ages. Just when I was beginning to think I was well rid of it, I lose two pullets. And they were big ones too from the looks of the running gears. What was left was absolutely the chassis, for the bones were picked clean. I am at my wits' end. We have tried live bait surrounded by a ring of steel traps, cyanide in all the holes we have been able to find, and we have stayed up all night with loaded guns. It is no laughing matter to me.

**August 10** — "Brown" White our police watch dog, has been moved out on the range for the night. Yesterday when I was at the auction an enterprising producer suggested trying a dog out to scare away varmints. The idea is that if the killer can't be caught to scare it away. It works the same way with humans. If you can't beat them, marry into the family. Anyway, from the racket Brown is making out there, nothing should come around. I'll go out in a little while to keep him company. A couple of burlap bags thrown down on the ground under the trees doesn't make a very soft bed for my weary bones. But, I am getting hard as nails; I can sleep the sleep of the sleepiest any time, any place.

**August 11**—Another batch of cockerels, 250, went to the auction this morning. They are getting to be a rather scarce article around the ranch. There will probably be two more small lots, one the little ratty fellows, and the other, the ones that have been roosting in the trees. We catch the latter by watching them go in the houses and also with a hook around the waterers and feeders. Then we hold them in the battery until sale day. It is a rather slow process, but it is the best we can do and they have to be caught someway. Usually there are about a dozen to be rounded up with the pullets. These are the foxy birds, the ones that keep one eye peeled and an ear to the ground all the time. But we finally outwit them. If I could only outwit that varmint.

**August 12**—There is nothing wrong with my shooting eye if I could only train it on the right article. I picked off a crow on the wing today just to show the varmints in this neck of the woods that it could be done. I realize that the crow couldn't have been killing these pullets, but I am beginning to get rather peeved about the whole thing. I am beginning to be a hooting, tooting, shooting chicken man.

**August 15** — "Junior" is a queer name for a dog, but it is the name of Bob Shoup's extraordinary coon hunting dog. Bob says he is in the same class as "U. S. Extra Special" eggs, and that means the tops. That is what I need in the varmint hunt, the tops in dogdom. Brown White—now isn't that a queer name for a dog — is a watch dog and not a hunting dog. He can't bark all the time, but when he does, it sounds like a fog horn on a steamboat, as one of the neighbors said. Anyway, between barks last night, that varmint slipped in and killed another pullet.

This afternoon, Kid White drove over and borrowed Junior. If that varmint comes around tonight, we are going to put Junior on the trail while it is hot. And if we run the varmint up a tree, we are going to shell him out with buckshot or cut down the tree. Or maybe we will burn the woods. If we run it down a hole, we will use cyanide or maybe dynamite.

**August 16**—Running true to form, the chicken killing varmint didn't come around last night. "Kid" White, Donnie, Junior and I went out on the range and layed low. That is, all but Junior. He was not very happy about the whole thing and went to sleep. Guess he must have thought it was the queerest hunting he had ever done. Instead of going after the game, we waited for the game to come to us. It didn't come, so it was love's labor lost.

**August 17**—These painters are still monkeying around. Looked like rain this morning, so they stayed at home. About noon, the sun came out, so after dinner they started painting the barn roof.

**August 18**—We are on the tail end of rooster marketing. Rounded up some of the young gallants this morning and took them to the auction. Also took in three coops of hens. My hens never grade very high, usually "B's". They are the last word in exhaustion, simply worn to a frazzle. My grading would be running gears plus bones plus what little meat that will hang on to them. Soup stock, if one doesn't care for much meat in one's soup. But they have laid eggs or they wouldn't have been sticking around this long. And they have laid big eggs too from the way the cases have been grading. All eggs are going as "large" mostly in "U. S. Extra Specials" with a very small percentage in "standards."

**August 20**—A little lull in chicken-killing. Brown and Junior bark at the moon and the stars and at each other most of the night. Then I think they bark to hear themselves bark. Anyway, it is evidently having a good effect on something, because that something hasn't been coming around like it did. If it will just stay put, I will charge the loss to experience and consider myself fortunate.

**August 22**—From the looks of the range this morning, something spent a sizeable part of the week-end killing chickens—I should say, killing my valuable pullets. There was nothing left but the running gears. All the flesh had been stripped from the bones.

I have come to several conclusions; viz, (a) it is a meat-eating animal, (b) it is hungry practically all of the time, (c) it might be a coon, (d) it might be a woods cat.

James and Arlo Mowrey, my good neighbors are coming over tonight about 10 o'clock and watch for it. They are going to give Kid White and me a much needed rest. Jim says that his idea is to get up on one of the brooder houses and direct his fire with a long range flash light. The pullets are always dragged out in the open field, so the theory sounds good to me.

**August 23** — Nothing happened on the range last night. Nothing ever happens when someone is on the lookout. For the past few days, I have been casting suspicious eyes at Micky, Kid White's pet house cat. He seems as innocent as a lamb and some of the killings have happened when he was in the house. Maybe I am wrong and that he is like Caesar's wife, above suspicion.

**August 25** — This slaughtering of pullets has been going on at No. 1 and 2 houses. But last night while Kid White and I were watching them, the prowler struck out through the woods and picked off a fine pullet at No. 6. Donnie and I spent about half the morning searching for clews to no avail.

**August 26** — The painters are through, they finally finished the job. The last ladder and dirty rag has been removed. I still have about 10 gallons of light gray paint left so if we have time Harold and I will paint the east house. It all depends on the weather. If we have an early fall, it will be necessary to move the pullets before we would have time for painting.

**August 30**—Everyone worked in the west house today getting it ready to move the birds tonight. The crank case oil on the dropping boards and floor has dried in sufficiently to scatter the sand and put down the peat moss. We always give the boards an extra heavy coating of sand the first time. Six bales of peat moss cover the floor to a fare-ye-well. There is 2,000 square feet of floor space in each building. The nests have all been lined with excelsior which has been packed tightly in the corners. The oyster shell hoppers have been filled and mash has been put in the feeders.

I have learned one thing about galvanized water vessels that will probably be a costly experience. When not in use, they should be drained and oiled. Standing empty they will rust worse than when in use. When they start to pit, it is only a question of time. And time always tells. It is telling in my hair if gray hairs designate the passing of time. It is telling in my face if wrinkles mark the years gone by.

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## *An Automatic Door for Summer Range Shelters*

In the summer it is highly desirable to let the birds out of the range shelters in the very early morning so that they can forage for food and eat their fill at the hoppers before the heat of the day makes it uncomfortable for them.

Some years ago we saw a range shelter for poultry ingeniously arranged. The owner did not favor getting up about 4:00 a.m. on summer mornings to let the birds out, so he put tension springs on the door and a small perch on the inside of the door which was connected with a latch. In the early morning a restless pullet was sure to fly to this small perch, located near the floor. The weight of the pullet released the latch, the door opened, the pullets flew out of the shelter to feed, and the owner slept blissfully on.

—D. M. Rutherford, Pacific Rural Press, June 24, 1939.

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# Feeding Practices I Have Found Helpful in Growing Good Pullets

By L. C. Beall
Vashon, Washington

*Condensed from a Talk*

IT is a well-known fact that no matter how perfect your "feeding practices" are, unless the stock has vigor and vitality and freedom from inheritable diseases, combined with a background of good breeding, your results cannot be uniform and satisfactory from a financial standpoint.

Starting after the completion of the hatch, the chicks are placed in the brooder when they are 24 to 36 hours old. Yes, I am old-fashioned—I do not use battery brooders. I still believe in a good room brooder from the start. We use electric forced draft hovers; also, some houses still have oil stoves.

### Warm and Cool Room Brooding

Our brooder houses have a warm room where the hover or stove is placed, a cool room with an open front for feeding and exercising when they are old enough, and a wire-enclosed sun porch. I try to keep the chicks comfortable, encouraging them to make use of the cool room and sun porch as soon as they can get used to the change without the danger of chilling.

At first, the chicks are fed and watered in the warm room. After several days, the starting mash is gradually moved to the cool room. Soon there is nothing to encourage them to stay in the warm room except to get warm at the hover. The idea is to have them exercise as much as possible in the cool fresh air.

The chicks should be given warm water (about 100 degrees) as soon as they are settled in the brooder. Keep the warm water before them for one week. Be careful of the drinking fountains as to their size and position that the chicks do not get wet or that the litter gets damp, as this will chill them. Have enough fountains so they will not have to crowd and crawl over each other to get a drink.

### Litter Covered at First

For the first day of feeding I cover the litter (we use spruce or hemlock shavings) with clean burlap to prevent the chicks from eating the litter rather than the mash. The mash is put in small hoppers first to provide easy access to the mash and give plenty of feeding room. The size of the hoppers can be increased the first week or 10 days to small wooden troughs.

Keep fresh mash before them by having them clean up the hoppers from time to time, or the older mash can be moved to one end of the hopper. Do not continue to place fresh mash on top of the older mash if you want them to keep their appetites. This method of handling mash is followed through all our feeding, including mature birds. A chicken relishes fresh mash much more than that which has been picked over.

Presented at the Seventh World's Poultry Congress, Cleveland, Ohio, July 31, 1939

To promote growth and health, all the necessary vitamins and proper balance of minerals are incorporated in the mash. The proper amount has been proven and determined by experimental station work; however, there is a difference in the sources and, again, in the stability or keeping qualities of these vitamins after they are incorporated in the feed, and in some cases even before. It has been found that many of the so-called "diseases" of chickens are merely deficiencies in vitamins or an unbalanced calcium-phosphorus ratio.

A feed manufacturer has to be on the alert to know what he is buying and if the feed will still protect the chicken after the poultryman has fed it. This means considerable laboratory and research work on the part of the feed manufacturer for you to be relatively sure of what you are buying. I have always believed in giving my chickens the best possible feed on the market, properly blended.

In the early days when we made johnnycake, ground breadcrumbs, and hard boiled infertile eggs, it was a lot of work to raise a thousand chicks. Sometimes they got by without their digestion being ruined; again, everything seemed to go wrong. Now, a lot of the labor and all of the guesswork of feeding has been done away with. Improved simple methods of management and proven tested formulas have made chick raising a pleasure rather than a hardship.

### Mashes Contain Milk

Milk is always incorporated in the chick starting and breeding mashes. All of our mashes contain dehydrated alfalfa. Thus we are protected in the riboflavin and filtrate factors in vitamin G, so necessary in the success of the breeding and starting mashes.

Years ago we would always have an outbreak of dermatitis or pellagra in the April chicks, causing some losses and a lot of culls. We found that milk would help the chicks most badly affected, but would not cure the bad cases. I concluded that the reason the chicks were affected late in the season when every other condition was good was that the breeding hens must be depleted of something carried over or a stored-up factor, so I started feeding increased milk before going into the breeding season with much better results, but I did not know then that this disease was caused by a deficiency of a vitamin G factor.

All of our mashes are well balanced in minerals according to the latest research reports on the calcium phosphorus ratio. I have never to my knowledge had any trouble from slipped tendons or perosis. The possible reason is a difference in brooding and range methods. Also, I have used granite grit for chicks as well as for growing and mature stock. All our mashes now contain sulphate of manganese as a protection to the young stock and a benefit to the laying and breeding stock.

After the pullets are three or four months old and while still on range, they are fed crushed oyster shell in hoppers. This is also supplied to all the layers and breeders.

### Grain Fed at One Week

By the time the baby chicks are one week old I start feeding them chick-size scratch, composed of cracked wheat and cracked yellow corn. A small amount is sprinkled on the mash in the hoppers. As soon as they know what it is for, I scatter a small amount in the litter to promote exercise.

Be careful not to feed too much scratch as they will unbalance their ration. Also, if a surplus remains on the floor, it may become unfit for consumption. One-half cup per 100 chicks a day is fed the first week, then increased each week. Still, remember that the proteins, vitamins, and minerals are largely contained in the mash, which means that to get the proper growth and health, they must consume a larger portion of mash during their earlier life.

Around the fourth week, the size of the scratch is changed to "intermediate." Enough is placed in hoppers twice a day to last them a short time. Still, scatter some in the litter to keep them busy. We try not to overfeed the young stock, keeping them with a good appetite, as they will be easier to handle if they do not sit around full, looking for trouble.

### Do Not Crowd Chicks

The best prevention against cannibalism is: do not crowd the chicks in the brooders. Have plenty of room. Keep the warm room comfortable for the chicks, gradually decreasing the temperature with lots of fresh air but not drafts. Keep the chicks busy and happy. I believe that 500 chicks is enough to place in a brooder, and if they are sexed pullets, 400 is better. If the weather is warm, this would be a lot of chicks for one room after they are five weeks old.

In brooding our pedigreed chicks, 500 are placed under a hover. At three or four weeks most of the cockerels are removed, retaining only the bloodlines that we want to raise for our own use. At about five or six weeks, they are vaccinated for fowl pox.

During reaction when their resistance is low we feed extra milk. This seems to boost them over this period and they come through in good shape. When they are taking their feed well, they are gradually changed to developing mash. This will be about the seventh or eighth week. This contains less ground yellow corn and more ground oats. After weeks, if they are taking their feed well and the weather permits, they are moved to the range and placed in "range shelters" or colony houses. Do not do this if there is any reaction going on from fowlpox vaccination.

### Range Kept in Sod

Our range is in four sections: two orchards (not cultivated) and two meadows. There is a good sod with a large percentage of clover and blue grass. The houses are moved to different locations each year. Water is piped to near the houses and drinking pans supplied by automatic floats furnish the water. These are placed on a screened frame, so that no slop or damp ground can be reached by the young stock.

Sanitation and fresh air are big factors in producing good stock. All of our poultry houses are washed and scrubbed thoroughly before any chicks, pullets, or mature stock is brought in. The floors and places where birds have roosted, as well as the nests, are sprayed with an oil spray composed mostly of shingle oil and disinfectant.

The brooder houses are cleaned regularly, care being taken that the litter does not become damp or dirty from droppings. This is a good insurance against coccidiosis.

### Lawn Clippings at Third Week

In the third week the chicks are given lawn clippings placed in wire hoppers. These hoppers are placed on the sun porch. In the early part of the year these may not be available, but due to our mild winters, it is not long before the grass begins to grow. It is green all winter, but too tough to make good feed until it starts out fresh. Our mashes are well supplied with dehydrated alfalfa, which is a good substitute even if not succulent.

On the range the growing pullets find an abundance of green grass and shade if they need it.

The colony houses are placed about 100 feet apart. Seventy-five to 100 pullets or 50 to 75 cockerels are placed to a house when brought from the brooders. The number of the cockerels has to be reduced to about 40 after they are five months old.

### Feeding Done in Troughs

The mash, scratch, and whole oats are placed in wooden troughs. These troughs are 6 to 8 feet long, and one trough for each kind of feed is placed at each house. Early in the season they have to be protected by cover from rain. However, we seldom have any rain after July fourth during the season on range.

They are encouraged to consume more scratch and oats than mash while on range. This will make bone and muscle rather than to cause them to come into lay before they have reached the proper size and be well matured.

In the standard size scratch, we use 25 per cent whole yellow corn. This helps to prevent the pullets from getting very fat on range and cause difficulty in laying when they do start. When the pullets become well established on the range, they are fed developing mash without any milk products in it. This makes a saving in the cost of the mash and the birds do equally well.

Hoppers are provided at each house for oyster shell and granite grit. The premises around and in the houses are kept clean and sanitary. In the colony houses and range shelters the roosts are well screened, so that the birds cannot get to the droppings.

### Oats for Cannibalism

It has been demonstrated by experiments at the Western Washington Experiment Station that when pullets are fed hulls and fibre contained in the ground oats in the mash and whole oats in the hoppers that they do not have the desire for feather picking and cannibalism and, later on, pickouts. This habit has proven very disasterous in a number of flocks and a preventive is gladly welcomed. This large addition of oats does not upset their ration, but produces fine pullets.

When the pullets' combs start to grow, they will want more developing mash due to the increased demand for protein.

### Housing the Pullets

When the time comes to house the pullets, have the laying houses already perfectly cleaned, ventilation in good working order so the birds can be kept comfortable, mash hoppers ready, also hoppers for grit and shell. The nests should be ready. We use shavings for nesting material. The pullets do not scratch them out, and it helps to keep the eggs clean.

In bringing the pullets from the range to the laying houses, I make a practice of making about three selections two weeks apart for each hatch, bringing them in when their development is about equal or at a time when their comb development is well along and they are nearly ready to lay their first eggs. I like to keep each pen in the laying houses at close to the same age and the same degree of development.

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# Abnormal Eggs

By E. A. Hewitt
Iowa State College

*Excerpt from the Journal of the American Veterinary Medical Association*

**Soft-Shelled Eggs**—There are some deranged physiological conditions which result in the laying of abnormal eggs. A condition about which the veterinarian is often consulted is the laying of soft-shelled eggs. Such eggs do not have a sufficient amount of shell substance covering the shell membrane. The immediate cause lies in a failure of the uterus or shell-gland-secreting portion of the oviduct to function properly.

Soft-shelled eggs also may be caused by the peristaltic contractions becoming so violent as to hurry the passage of the egg without allowing time for the secretion and deposition of the shell. Soft-shelled eggs may be produced when the fowls are frightened or disturbed. Sometimes this abnormality is attributable to excessive feeding or a supply of material inadequate for the shell gland to produce the shell.

**Yolkless Eggs**—Small, yolkless eggs are familiar to every poultryman. These little eggs are designated under a variety of names, such as "wind eggs," "cock eggs," "witch eggs," "luck eggs," etc. They contain no definitely formed yolk and, to the casual observer, seem to consist of nothing but a small shell filled with white.

The laying of such eggs is popularly supposed to mark the end of the laying period. This belief is without foundation. In fact, experimental evidence indicates that the bird must be in an active laying condition and that the more pronounced the degree of physiological activity of the oviduct, the more likely are such eggs to be produced. Further, there must be some foreign body, however minute, to serve as a stimulus which will start secretion by the albumin gland. It is also probable that ovulation must precede the secretion of albumin around the foreign body to form these eggs.

**The Double-Yolked Egg** — A very common abnormal egg is the double-yolked type, which results from a disturbance of the time relations of ovulation of such a nature that two yolks get into the oviduct at nearly the same time and become surrounded by common layers of albumin. When two yolks develop simultaneously and escape, being taken up by the oviduct at the same time, double-yolked eggs may develop.

Double-yolked eggs also may be produced through the premature rupture of a follicle, which allows the yolk to escape into the abdominal cavity. This yolk may be taken up by the oviduct often just before or just after another yolk is received from the ovary, in which case the two yolks travel down the oviduct at the same time. Such yolks may be fertile and develop embryos, although they rarely hatch.

It sometimes happens that what

Excerpt from "The Physiology of the Reproductive System of the Fowl," Journal of the American Veterinary Medical Association, August, 1939

appears to be a double-yolked egg is found to contain another egg instead. For some reason, the egg normally formed and ready for laying is forced back up the oviduct, by reversed peristalsis, into the albumin-secreting portion, which causes a new secretion of albumin and, when it passes down the oviduct again, it receives the second deposition of shell membranes and shell.

**Foreign Substances**—Occasionally, foreign substances are found in the eggs. These foreign substances may be blood streaks or spots, blood clots, worms, fecal matter, etc. The blood which makes the blood spot usually comes from the ovarian follicle. The so-called "liver" or "meat" spots found in eggs are in nearly every case thoroughly hardened blood clots. These inclusions do not represent portions of the oviduct as is commonly thought.

**Parasites**—Parasites found in eggs have evidently migrated from the cloaca into the oviduct for a sufficient distance to meet a developing egg and settle in the coverings of the yolk. Similarly, the presence in eggs of fecal material, fragments of feathers, bits of plants, and even pebbles probably results from the passage of the material up the oviduct from the cloaca and its incorporation in the egg during the passage through the oviduct.

## *Stop Coccidiosis Losses*

The first step in reducing losses from coccidiosis is to remove from the birds 75 to 90 per cent of their droppings. Wire platforms should be provided where the birds spend the most of their time—around the feeders and watering devices and under their roosting quarters. Some space should be left on the floor for litter and a scratching area where the birds may have a slight contact with the coccidiosis parasite over an extended time to build up their immunity.

The second step in controlling losses should be your preparation to cope with the disease once it gets a foothold in your flock. This should be as soon as possible after the infection gets into the birds. Keep your eyes open for pure dark-red blood (not a pinkish hamburger-like dropping) either with a dropping or as an entire passage from a bird. When this is seen, our recommendation as a program is to take the mash away and substitute molasses bran for at least a half-day. The pen should be cleaned immediately and then cleaned at intervals of 1½ days for about five cleanings. All the droppings should be removed from the birds with these cleanings since it is the re-infection which builds up the number of coccidia in the birds that causes the loss.

—Herbert A. Hogsett, Pacific Rural Press, April 1, 1939.

❝ A TURKEY TOM on the farm of E. R. Smith, Geneva, N. Y., will soon have a family. He is setting on about 40 guinea hen eggs. The gobbler promises to be a "mother" to the orphans.

—Newspaper Article.

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# Squab Chicken

By P. J. Schaible, Ruth M. Griswold,
J. A. Davidson and Selma L. Bandemer
Michigan Agricultural Experiment Station

*Reprinted from Poultry Tribune*

SQUAB chicken, 1 to 1.25 lbs. live weight, is not marketed at present to the same extent as heavier classes of poultry. Inquiry as to the reasons involved has led to the opinion that lack of demand for this size of bird is due to: (1) the customary method of preparation by splitting in halves provides too small a portion of chicken; (2) boning is so expensive that it limits the product to high-priced dining rooms; (3) the chicken flavor is not as pronounced as in older birds. These objections have been overcome by preparing and serving squab chickens whole in a manner to be described.

An analysis of the cost of meat production has shown that squab chickens can be economically produced. The largest item of cost in producing chickens is feed, and young chickens utilize this more efficiently than older birds. For example, squab chickens require 30 to 45 per cent less feed than broilers or roasters to produce the same live weight in the same time. Furthermore, squab chickens need only three-fourths as much floor area, but on the other hand require twice as much heat because of the extra baby chicks to be started.

It has been stated that, because the rate of mortality is highest for young birds, it is more profitable to grow them to heavier weights. Despite this higher rate of mortality of squab chickens, however, the investment per casualty in the heavier classes of poultry more than outweighs that of a larger number of less expensive squab chickens.

### Need One Bird for Each Plate

An entire squab chicken is required for each serving and thus several times the present number of baby chicks are needed. This should be of particular interest to hatcherymen, providing them with an outlet for sexed cockerels and an opportunity of extending the hatching season.

Leghorns, 1 to 1.25 lbs. live weight, are killed, dressed, waxed, and drawn in the usual manner. A highly seasoned stuffing containing chicken fat is used to accentuate the flavor and is kept in the cavity by covering the opening with the legs held in place by a skewer. The birds are steamed for 10 minutes and browned in an oven at 450 degrees Fahrenheit for about 15 minutes.

When a waxing outfit is not available and the birds are to be cooked without too much delay, skinning is much faster. In this procedure, the birds are beheaded, bled out, and the feet and shanks, necks, and wings at the first joint removed. The skin, snipped on the abdomen, is pulled over the breast and wings in one piece, tearing easily along the feather tract on the sides; the remaining skin is stripped off in a second piece. Skinned birds are provided with a new covering of egg and crumbs and, in appearance and eating quality, are

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(Poultry Tribune, August, 1939)

equal to unskinned birds.

Skewering may be avoided if, after stuffing, the legs are crossed and the birds stood erect in a circular opening of a wire rack. The weight of the birds holds the legs close to the body and prevents loss of stuffing.

Squab chickens that had been precooked and stored hard-frozen nearly a year were found to be satisfactory. Precooked squab chickens require only warming to serve and are thus well adapted for banquet and hotel service, where no extra kitchen help for the preparation of a delicacy is desired. Precooking and freezing provides a satisfactory method of handling surplus cockerels in the spring.

Popularization of squab chicken would be advantageous to both the producer and hatcheryman and would provide the consumer with an especially attractive dish. Actual trials in a cafeteria have shown that squab chicken was preferred to other forms of chicken, and, at banquets, it has been especially well received.

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## *Scientists Solve Egg Shell Puzzle*

When a hen begins to lay eggs, the amount of calcium in her blood just about doubles and physiologists have long been puzzled to know how the level of blood calcium is raised so rapidly.

They knew why the change was necessary. It permits the hen to put a normal shell on her eggs, for the shell is 95 per cent calcium carbonate. For every dozen eggs of average size, the hen must produce about two-and-a-quarter ounces of calcium carbonate. This she gets from oyster shells or ground limestone provided in her diet, but if the supply of these is inadequate, the hen can draw on the calcium in her bones to fill the need.

The answer as to how the amount of calcium in the blood is raised is now provided in some experiments by Dr. M. Altmann and Dr. F. B. Hutt of the Cornell poultry department, as reported in the journal, Endocrinology.

Apparently a hormone (secretion) produced by the ovary is accumulated in the developing egg yolks, and when it reaches a certain concentration it stimulates the parathyroid glands into activity. These are small glands at the base of the neck and not much bigger in the fowl than the head of a pin. When active they produce a powerful hormonal secretion which causes the blood to hold much more calcium than it could without that hormone.

Nature has thus provided a mechanism whereby the developing eggs send a warning to the parathyroids that a lot of calcium will be needed shortly for shells. Those tiny glands provide what is needed, says Dr. Hutt.

In the experiments reported, this same effect was provided artificially by injecting egg yolk into non-laying birds, thus simulating in them the condition prior to laying, when yolk accumulated in the follicles. The result was a rise in blood calcium similar to that in laying birds. This effect was also induced by injecting purified ovarian hormone without any egg yolk.

—News Release, New York State College of Agriculture.

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# A Practical Poultry House

By Hobart Creighton

*Condensed from a Talk*

THE house I want to discuss is an accident. I say this because it was originally a farrowing house for swine. When we changed from hogs to chickens, we merely overhauled our hog house and made it into a laying house. This house worked so satisfactorily as a laying house that the same cross section was used in the construction of practically all of the laying houses we have built since that time. This type of house has grown in popularity in Indiana and surrounding states until I'm sure I'm right when I say that 75 per cent of the laying houses now being built in the Kosciusko County area of Indiana are of this pattern. Some are 30 feet long and some are over 200 feet in length. They can be built any length, and by bolting in one end, the bolts can be removed, the house extended to the desired length, after which the end is again bolted and the house is complete.

### Advantages of Large House

I feel that for a commercial poultryman there are advantages in a large laying house. Our 30 by 210-foot building accommodates 2,000 laying birds, 1,000 in each end. There is a feed room 10 by 30 feet in the center section of the house with feed bins sufficient to hold a 10 days supply of feed and large enough to furnish sufficient space to case eggs and do other necessary work.

A 30-foot house has sufficient width to enable a better arrangement of furniture than has a house of lesser width. We all know a great deal of furniture is required in a laying house. I refer to feeders, water founts, nests, dropping boards or pits, and any other special articles which a poultryman might consider necessary in furnishing his house.

There is ample room on the front or south one-third of our house to accommodate all the water founts and feeders necessary. On the back or north side of the house, we have the nests hung on the wall. The bottoms are removable as an aid in cleaning. The boards forming the floor of the nest merely slip out from one end and practically all the litter will drop on the floor. The perches and dropping pits are on the back side of the house. The pits are covered with netting of 1½ inch size to keep the birds from the droppings. These perches form a convenient waiting place for the hen that is looking for an open nest. She hops from the back perch right up to the nest. We provide a nest for each five hens. We use six perches on our perch frames which allow over 6 inches of space for each hen. The hens spend more of their daylight hours on the perches where pits are used than they do where dropping boards are used. The low perches seem to offer a greater inducement to perch than the higher ones. The pits are easily cleaned and, contrary to the ideas of many people, do not give off a foul odor, even if left for weeks without cleaning.

### Driveway Through Center

The center one-third of the building is not used for any equipment. It does

Condensed from "A Practical and Satisfactory Poultry House," Presented at the Seventh World's Poultry Congress, Cleveland, Ohio, Aug. 2, 1939 have a use, however, in addition to providing a space for the chickens to scratch. If desired, some of the feeders can be shifted over to the center section. We use it primarily, however, as a thoroughfare through which we can drive the manure spreader for cleaning.

### Rubber Tired Equipment

We use rubber tired equipment on our farm. The spreader is backed in the building, generally by hand. We start cleaning out the section next to the feed room and work toward the end door. There is no litter to clean up on the outside of the building and no carrying of litter on wheelbarrows. If the house is 100 feet or less in length, we recommend placing the feed room in one corner of the building, using the driveway to pass entirely through the building from one end to the other.

This house is ventilated by doors and windows. We have found that by opening the windows in winter according to the weather, we can provide sufficient ventilation. The insulation of this house makes it possible to maintain a comfortable temperature in all kinds of weather conditions in northern Indiana.

Our water pipes in the house make it necessary to maintain a temperature above freezing. In sub-zero weather, we sometimes start fire in hard coal stoves to bring up the temperature. It tends also to dry out the house. The stoves we use are what are known as base burners and are stoves that have been discarded from homes for more modern heating equipment. We use a sheet metal roof stack through which the pipe passes out the roof. We prefer hard coal stoves, because they furnish a more even temperature and the stove pipe does not heat as with soft coal or wood.

Now I should like to go into more or less detail regarding the construction of this building. We use a concrete wall and floor. The floor, of course, should be some higher than the ground level at the highest point around the building. We like to locate the building on a spot that is well drained and if possible on light soil.

### Framing Construction

We use 2 x 6 sills which have been treated with a wood preservative. We use 2 x 4 studding the lower ends of which have also been dipped in wood preservative. We all know the humidity in a laying house is high, especially so close to the floor, and this precaution makes the sills last much longer. The studding on this house are cut 4 feet 11 inches long and a double 2 by 4 plate is placed over and spiked to them.

The rafters are notched and spiked to the 2 by 4 plates. The rafters are supported by a 2 by 8 purlin plate resting on posts at intervals of 10 feet. We use 2 by 8's 20 feet long as purlin plates which give greater rigidity to the building than 10-foot pieces would. Each rafter is lightly notched for the purlin plate and spiked to it, so that this plate is properly aligned. We use a ridge board to which the rafters are nailed at the ridge of the building.

The posts we use are formed by spiking two 2 by 4's together and notching them at the top so that the purlin plate rests on the top of one and is spiked to the other.

On the side and end walls, we use a shiplap siding covered with a layer of 30-pound saturated asphalt felt which in turn is covered with drop siding. This provides a warm construction, and the felt stops the moisture before it reaches the outer siding, thereby protecting it from

decay and keeping the paint from scaling off due to moisture from the inside.

### Built-up Roof Used

The roof is constructed by placing a layer of shiplap over the 2 by 4 rafters. This is covered by a 1-inch insulating board securely nailed by 1¾-inch galvanized roofing nails. The insulation is covered by a built-up roof consisting of a layer of 30-pound felt mopped on the insulation by hot asphalt and two layers of 15-pound felt mopped on, and finally a top mopping of hot asphalt.

Before the roofing is placed on the building, but after the insulation has been applied, the metal apron for the eaves trough is nailed in place. It is covered then by the roofing.

We use metal window frames on the south wall. There is a solid row of these windows, four light 9 by 12, on the south side of the house, giving an actual glass area on the south of 5 per cent of the floor space. The windows on the north side provide light on the back part of the house as well as an outlet and inlet for the birds in summer. The sash are a patent puttyless sash, so that if a pane of glass is broken, it may be replaced quickly and at little cost.

The sash tilt inward to provide ventilation. This protects the house from rain and still permits adequate ventilation during the colder part of the year. In summer the sash on both the north and south sides are removed so that plenty of ventilation is provided. Netting is placed over the openings during this period. Our end doors are open day and night in the summer, screen or netting doors being provided to confine the birds when desired.

This house is wired for electricity and water pipes are laid under the floor.

This makes an attractive house, a house with lots of room and we think it is arranged very conveniently. It is a house that is rapidly growing in favor in the Midwest and, in my opinion, serves the need of the commercial egg producer or breeder very well.

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## *Feeding Incubator Eggs to Pigs*

That problem of disposing of incubator eggs has been neatly and profitably handled by R. L. Scharring-Hausen, of Hopewell, N. J. He purchased four young pigs in January, and at the time they weighed 152 pounds. On June 1 the pigs took a trip to the scales again, and this time they balanced at 647 pounds. According to Mr. Scharring-Hausen, the gain was due to the 800 pounds of grain and the incubator eggs and incubator wastes they consumed between January and June. Mindful of the present price of pork, he figures that he has received a profitable return from his incubator eggs.

—New Jersey Farm and Garden, July, 1939.

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A GOOSE setting on her nest is not likely to be playful. At least, R. G. Bishop of Branch County, Mich., found this to be the case when one of his two-day old twin lambs became too frisky and inquisitive and was killed by the outraged goose.

# The Turkey Promoter

*Condensed from Norbest News*

A new type of individual has sprung up in certain turkey production areas of the West the last two years, the turkey promoter. There is no question but that the operations of these men have contributed some to the present season's large production.

Turkey promoters are in reality financial agents for certain large eastern commission firms. These firms conceived the idea of financing the growers on a guarantee basis. Some thousands of turkeys were raised on this plan in 1938 and many more thousands are being raised this year.

The plan is relatively simple. The grower signs a contract to market his turkeys through the promoter on a guarantee of 19 cents for primes, 16 cents for choice and 13 cents for commercials, f.o.b. the cars. For some few pre-season flocks the guarantee was 2 cents higher; it is rumored that it has been cut down below the above figures for late birds. The promoter, acting for the eastern firm, generally deposits about 30 cents per bird with the local bank, which in turn does the active financing for the grower. For selling the birds, the commission firm charges the grower 1½ cents per pound.

There is no question but this plan enables scores of people to go into turkeys who otherwise would be financially unable to get into commercial production. It is a moot matter whether or not the grower is paying too much for what he receives. Take for instance the matter of interest. Most banks follow the practice of charging the grower interest on the entire amount he borrows from the time he signs the notes. Yet, most of this money is not used until fall, when the heavy feeding actually begins. An apparent 8 per cent interest is thus actually doubled in rate.

Then there is the matter of the guarantee. For the two years that this system has been in operation, there has been a rising and satisfactory turkey market, far over and above the guarantee. What would happen should the wholesale price of turkeys fall below the guarantee is a matter of conjecture. Nineteen cents for primes f.o.b. Utah points means around 17 cents net to the grower for his prime dressed birds, for it will cost at least 2 cents to process them. Not all his birds will grade prime (fortunately for the growers, most of these contract birds are being government graded and weighed) so what the price actually means is that the grower must be able to grow his turkeys for an average of around 15 cents a pound to break even. This past spring 40 cents represented an average poult price or something over 3 cents a pound dressed weight without figuring anything out for mortality. This means that labor, interest, brooder fuel and feed, all must needs come out of the remaining 12 cents before the grower makes any money, providing of course the turkeys sell for only the guarantee.

Then there is the matter of stability. The turkey promoter is with us today, how long he will stay, how well he would survive a bad turkey year, is a matter of both question and interest.

Northwestern Turkey Growers Association, Salt Lake City, Utah
(Norbest News, June, 1939)

An interesting feature of the whole situation is that many of the growers now financing on a guarantee say they do it simply to keep in the turkey business.

The turkey promoter himself has had easy sailing these two years. In general he gets a 2 cent commission on all the poults he handles and ½ cent a pound for all the turkeys. With thousands of birds, this runs into real money. Often he does some field service, runs countless errands, and in general makes himself useful.

## *Feed for Maximum Egg Production*

A lady told me the other day that she had been getting from five to six cases of eggs a week, but they got so cheap she decided to stop feeding mash and let her hens get along as well as they could on grain. It wasn't long until she was getting only two cases a week. "I did a little figuring then," she said. "And I made up my mind that if I was going to keep the hens, I'd be better off feeding them to get all the eggs I could."

—Frank Priebe's Weekly Letter to Poultry Raisers, June 17, 1939.

## *Freak Egg Produced by White Leghorn Pullet*

An apparently fully developed ovum completely enclosed in an unbroken follicle or yolk sac was produced by a White Leghorn pullet on April 22, 1937, at Cornell University, according to F.B. Hutt, in Poultry Science for July, 1939. The follicle seemed normal in every way and was covered with its usual network of blood vessels. There were no covering envelopes except a thin film of albumen. Search of literature has revealed no similar case on record.

RANGING hens kept by Mr. Goddard, Teffont farmer, may lay their eggs in all sorts of inaccessible places—but Mr. Goddard never misses one, thanks to his spaniel, Floss. Floss does a bit of ranging around the hedgerows on her own account every day and brings back all the stray-laid eggs, two at a time, in her mouth. She likewise sees to it that no fowl or duckling goes too far afield by picking it up gently when it "breaks bounds" and carrying it back home.

—Eggs, London, England, June 14, 1939.

A CHICKEN in every pot every two weeks, instead of every 2½ weeks would provide an increase of 230 million dollars a year in national income from poultry alone.

—J. Frank Grimes in talk before the American Institute of Cooperation, Chicago, Ill.,

# VIEWS OF THE EDITORS

## REA Hatcheries?

According to a recently published news item, the Rural Electrification Administration plans to help establish processing centers in rural communities, these centers to have a central unit, such as a feed grinding plant, hatchery, refrigerator locker plant, or canning plant. It is said that the preliminary plan of REA is to establish one such processing plant in each state.

We believe hatcherymen, generally, have felt favorably disposed toward REA projects because of the higher living standards they make available to farmers, and the fact that they make it possible for poultry raisers to use modern electric brooders and other electrically operated equipment.

But if REA is to bring hatcheries and feed mills, financed with government money, in competition with established hatcheries and feed dealers, it may indeed prove to be a mixed blessing.

—Hatchery Tribune, August, 1939.

## They Told The Story!

The Seventh World's Poultry Congress and Exposition, the first ever held in this country, was an indescribable triumph. It was essentially a triumph of cooperation under the enthusiastic leadership of men of faith—faith in their industry and in their fellow-men. These enthusiastic leaders inspired the active cooperation of foreign governments, of our own government, of state and provincial governments, of educational and business institutions and of more than 5,000 citizens of this country and others. That cooperation produced an exposition that filled three vast buildings, that attracted immense attendance, that told the story of poultry as it never has been told before. Never have we seen a better or broader exposition of all parts of a great industry than this. Never more evidence of the prevalence of the spirit that giveth life. But it is just as futile to attempt to define the spirit of the occasion as it is to describe the details of the Show. Is it not significant that while the Exposition made an actual money profit this was less regarded than the profits which cannot be expressed in dollars? And that all the money profit must be devoted to further education?

Too many things to mention here might be cited as signifying the progress of the poultry industry. One of them was the recognition of the fact that consumers must be convinced of the merits of poultry products if the industry is to prosper. Both educational and business institutions directed their efforts to the education of consumers, this in many and diverse ways. The demonstrations by processors were especially attractive to the public and Cleveland markets gave immediate evidence of their effects. In the Congress there was no lack of recognition of the value of science in the cause of production; yet the largest assembly was to hear what successful poultrymen had to say about their experience in production. A pervading lesson was the magnitude of an industry of small units. An egg is a little thing and so is the hen that laid it. A turkey is not a large unit either, nor is a duck or a goose. But these small units make an immense industry and one of the highest importance to the world's economy and its human health.

"The poultry industry has come of age," said the beloved "Jimmy" Rice, the head of the whole show at Cleveland and for many years the apostle of the hen. And then he pointed out the fact that with maturity comes responsibility for better service and further achievement by the industry which means so much to so many in it and to the world as well.

—Pennsylvania Farmer, Aug. 12, 1939.

## Tribute to an Industry

The Seventh World's Poultry Congress at Cleveland was an outstanding success. Held every three years in different countries throughout the world, it paid its first visit to the United States last week, and those of us who attended realize we have been witnesses to one of the finest agricultural shows ever held in this country.

From the first day, thousands of people poured into the Congress halls from every State in the Union, Washington to Maine, North Dakota to Texas. Several hundred came from foreign lands, some of them as official representatives in charge of their country's exhibits, and many in the capacity of visitors who, poultrymen themselves, were anxious to see how we did it here.

This great, populous demonstration was evidence of the universal interest in the poultry industry. Without exception, everyone who attended was absorbed in learning more about chickens and eggs. There were no diverting novelties or midways. The central theme was educational. Each day lectures were given by outstanding experts in the industry, and were attended to capacity. Commercial exhibitors were continually drawn into scientific and practical discussions about their products, whether it was poultry equipment, remedies or feed. Commercial hatcherymen were busy from nine in the morning till ten at night showing their prize birds and baby chicks to old customers whom they had never personally met, and to many new ones who promised spring orders. The men and women from the farm had traveled great distances to better their knowledge of the branch of agriculture that they had made their life's work. They were not disappointed.

The Poultry Congress is pledged to the advancement of the world's poultry industry. This year, America was chosen as host in recognition of the great strides we have made in the past 25 years. Gross income from our poultry products exceeds $1,000,000,000 every year. We have discharged well our duties as host and the men in charge of the Cleveland show are to be commended for their fine work in more than fulfilling the pledge imposed upon them. Financially, the Congress was a success. Culturally and scientifically, it exceeded in scope even the most enthusiastic expectations. There could be no more fitting tribute to a great and growing industry.

—Rural New Yorker, Aug. 12, 1939.

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DURING the fiscal year ending June 30, 1939, the Federal Surplus Commodities Corporation purchased 3,210,000 dozen fresh eggs for distribution to families on relief rolls.

# POULTRY STATISTICS

## Hens on Farms — Rate of Lay

### Number of Hens Per Flock, and of Eggs Laid Per Hen and Per Flock, First Day of Month

| Geographic Division | Layers per flock Jan. 1 | Layers per flock June 1 | Layers per flock July 1 | Eggs per 100 layers June 1 | Eggs per 100 layers July 1 | Eggs per 100 layers Aggregate Jan.-July | Eggs per flock June 1 | Eggs per flock July 1 | Eggs per flock Aggregate Jan.-July |
|---|---|---|---|---|---|---|---|---|---|
| North Atl. | | | | | | | | | |
| 1928-37 (Av.) | 96.9 | 82.4 | 77.5 | 54.6 | 47.9 | 314 | 45.0 | 37.3 | 274 |
| 1938 | 96.7 | 81.7 | 77.0 | 56.1 | 51.1 | 346 | 45.6 | 39.6 | 303 |
| 1939 | 98.4 | 80.5 | 73.0 | 55.7 | 50.1 | 343 | 42.5 | 36.8 | 295 |
| North Cent. | | | | | | | | | |
| 1928-37 (Av.) | 115.7 | 96.9 | 89.8 | 51.1 | 42.9 | 275 | 49.6 | 38.7 | 287 |
| 1938 | 102.4 | 85.9 | 79.2 | 54.3 | 47.3 | 309 | 46.9 | 37.7 | 288 |
| 1939 | 110.4 | 91.8 | 84.7 | 53.8 | 47.0 | 306 | 49.5 | 40.0 | 306 |
| South Atl. | | | | | | | | | |
| 1928-37 (Av.) | 60.1 | 49.2 | 47.7 | 45.8 | 40.4 | 279 | 22.2 | 19.2 | 148 |
| 1938 | 55.8 | 46.3 | 46.0 | 48.7 | 42.5 | 307 | 22.2 | 19.2 | 155 |
| 1939 | 59.9 | 48.1 | 45.9 | 49.0 | 42.4 | 306 | 23.2 | 19.1 | 158 |
| South Cent. | | | | | | | | | |
| 1928-37 (Av.) | 66.8 | 52.5 | 50.4 | 45.0 | 38.0 | 270 | 23.6 | 19.2 | 157 |
| 1938 | 59.3 | 49.1 | 47.6 | 48.3 | 42.0 | 300 | 23.5 | 19.9 | 162 |
| 1939 | 63.6 | 52.9 | 50.8 | 47.8 | 40.7 | 294 | 25.3 | 20.6 | 169 |
| Western | | | | | | | | | |
| 1928-37 (Av.) | 74.0 | 64.1 | 60.8 | 54.3 | 48.6 | 316 | 35.0 | 29.7 | 211 |
| 1938 | 71.1 | 62.1 | 59.6 | 54.7 | 49.9 | 327 | 34.2 | 29.8 | 214 |
| 1939 | 72.6 | 60.3 | 56.7 | 53.6 | 48.4 | 329 | 32.6 | 27.7 | 212 |
| United States | | | | | | | | | |
| 1928-37 (Av.) | 86.0 | 70.9 | 66.8 | 50.1 | 42.8 | 282 | 35.1 | 28.3 | 215 |
| 1938 | 77.6 | 65.0 | 61.6 | 52.9 | 46.5 | 312 | 34.0 | 28.2 | 220 |
| 1939 | 82.8 | 68.5 | 64.1 | 52.4 | 45.9 | 310 | 35.3 | 28.9 | 228 |

The number of layers per farm flock on July 1 was 4 per cent greater than on the same date last year. For January 1 this year the gain over 1938 was almost 7 per cent, and for subsequent months gains of around 4 or 5 per cent over the same dates in 1938 have been indicated. The greatest gains for July 1 were the 11 per cent reported for the West North Central States and 7 per cent for the South Central. The East North Central region shows a gain of only 2 per cent, the South Atlantic indicates no change from a year earlier, while the North Atlantic and Far Western report 5 per cent loss in numbers per farm flock. Compared with the 10-year (1928-37) average number of layers for July 1, the West North Central region is still short 7 per cent even after the present gain of 11 per cent over 1938. Other regions showing reductions from 10-year average numbers are the North Atlantic, by 6 per cent, the Far Western by 7 per cent, and the East North Central and South Atlantic by 4 per cent. The South Central is the only major region showing a gain in number of layers over the 10-year average, and there by only 1 per cent.

The average number of young chickens reported in farm flocks on July 1 was 136, which is 2.6 per cent greater than the number on hand a year earlier, and 1 per cent above the 10-year July 1 average. Increases are shown over last year in all major regions except the North Atlantic where a decrease of 12 per cent is reported. Gains in other areas range from 15 per cent in the Far Western to 5 per cent in the West North Central, 3 per cent in the South Atlantic and 2 per cent in the East North Central and South Central areas.

Taking into consideration the 4 per cent greater number of layers on hand, the 2.6 per cent increase in number of young birds from which pullets may be saved, and the present relation of the price of eggs to the price of feed, a small increase in numbers of hens and pullets for next season's laying flock appears probable. Whether the prospective gain will go above or fall below a present indication of about 2 per cent increase will largely depend upon the trend of egg, chicken, and feed prices during the remaining months of the year.

About 1 per cent fewer eggs were laid per hundred birds on July 1 than on the same date in 1938, but more than on that date in any other previous year. Although all regions show a lower rate of laying on July 1 this year than in 1938, all show a higher rate than the 10-year average for July 1. The increase over the average is most striking in the West North Central States, which gained 12 per cent. In the East North Central and South Central regions the gain was 7 per cent, and in the North and South Atlantic 5 per cent.

The indicated total production of eggs is 2 per cent greater than last year's July 1 total, the slightly lower production per hen being more than offset by the larger number of layers. Regional increases over last year, in total production of eggs on July 1, amount to 9 per cent in the West North Central, 4 per cent in the South Central and 2 per cent in the East North Central States. But both the North Atlantic and the Far Western commercial regions report their July 1 production 7 per cent below that of a year earlier. Compared with 10-year average July 1 production, the South Central region gained 7 per cent and both of the North Central regions 3 per cent, but the North Atlantic lost 1 per cent and the Far Western 7 per cent.

Responses to a July 1 inquiry to crop reporters concerning the number of turkey poults on hand tend to support the earlier (February 1) reported intention of producers to greatly increase production of turkeys this year.

—Comment from Poultry and Egg Production Report.

## Egg Prices

### 1939 Egg Prices at New York City

| Kind | July 7 | July 14 | July 21 | July 28 | July 28, '38 |
|---|---|---|---|---|---|
| Mixed Color Firsts | 16 | 16¼ | 16¼ | 16¼ | 21¾ |
| Nearby and Midwestern White Premium Marks | 24½-27 | 23½-26 | 24½-27 | 26½-29 | 28¼-31 |
| Nearby and Midwestern White Specials | 23 -24 | 23 | 23½-24 | 26 | 24½-28 |
| Pacific Coast Specials | 29 -29½ | 29 -29½ | 28¾-29½ | 28 -29½ | 33½-34 |
| Nearby and Western Brown Exchange Specials | 21½ | 22 | 22 | 23 -24 | 27 |

A steady to firm tone prevailed in egg markets during July, but Agricultural Marketing Service observers report only slight price changes except on the Pacific Coast. While relatively heavy production has kept markets supplied beyond quantities apparently needed for current demand, burdensome surpluses have been avoided through Government buying under the surplus removal and price stabilization program. Storing of eggs continued in July, although the season's peak apparently has been passed.

Buying operations of the Federal Surplus Commodities Corporation were discontinued temporarily early in July, but were actively resumed by the middle of the month. F.S.C.C. purchases for the month up to July 25 totaled 12,100 cases at New York, and 23,300 cases at Chicago. June purchases included 72,500 cases at New York and 35,200 cases at Chicago. Buying at New York has been made on a price basis of 16¼ cents for Firsts, with Chicago prices somewhat lower, depending upon grade and market differentials.

—Comment from Monthly Egg and Poultry Markets Review.

**Farm Prices of Eggs per Dozen**

| Year | Feb. 15 | Apr. 15 | May 15 | June 15 | July 15 | Aug. 15 | Sept. 15 | Oct. 15 | Dec. 15 |
|---|---|---|---|---|---|---|---|---|---|
| | (Figures given in cents) | | | | | | | | |
| Average 1928-37 | 21.6 | 17.4 | 17.5 | 17.4 | 18.7 | 20.6 | 23.9 | 27.0 | 30.3 |
| 1937 | 20.1 | 20.1 | 17.9 | 17.6 | 19.4 | 20.4 | 22.9 | 25.2 | 26.0 |
| 1938 | 16.4 | 15.9 | 17.6 | 18.2 | 19.9 | 21.0 | 24.9 | 27.1 | 27.9 |
| 1939 | 16.7 | 15.5 | 15.2 | 14.9 | 16.5 | | | | |

## Poultry Meat Prices

**Farm Prices of Chickens per Pound**

| Year | Feb. 15 | Apr. 15 | May 15 | June 15 | July 15 | Aug. 15 | Sept. 15 | Oct. 15 | Dec. 15 |
|---|---|---|---|---|---|---|---|---|---|
| | (Figures given in cents) | | | | | | | | |
| Average 1928-37 | 15.4 | 16.4 | 16.3 | 16.1 | 15.8 | 15.7 | 16.0 | 15.4 | 14.4 |
| 1937 | 13.6 | 15.2 | 14.8 | 14.8 | 15.3 | 16.8 | 17.4 | 17.6 | 16.4 |
| 1938 | 16.0 | 16.2 | 16.1 | 15.7 | 15.0 | 14.2 | 14.3 | 13.6 | 13.6 |
| 1939 | 14.2 | 14.4 | 13.9 | 13.4 | 13.7 | | | | |

## Receipts of Eggs and Poultry

**Receipts of Eggs at Eastern Egg Auctions**

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| July 1 | 28 | 23,698 | –5.32 | +21.49 |
| July 8 | 23 | 20,994 | –4.90 | +24.74 |
| July 15 | 25 | 23,662 | +5.30 | +33.70 |
| July 22 | 27 | 22,545 | –3.25 | +22.17 |
| July 29 | 21 | 18,383 | +0.16 | +27.63 |

The flow of eggs to market this summer has been relatively heavy, and reflects the increased production that has occurred in most areas. Total production on July 1 was reported by the Service as 2 per cent greater than a

**Receipts of Eggs at Pacific Coast Primary Markets**

| Week Ending | No. of Plants | Cases of Eggs 1939 | Cases of Eggs 1938 | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| July 1 | 62 | 57,150 | 63,750 | –1.95 | –10.35 |
| July 8 | 63 | 54,164 | 58,883 | –5.80 | – 8.01 |
| July 15 | 62 | 51,434 | 58,445 | –2.64 | –12.00 |
| July 22 | 63 | 53,338 | 59,878 | +3.02 | –10.92 |
| July 29 | 63 | 53,018 | 55,304 | –0.60 | – 4.13 |

**Receipts of Eggs and Poultry at Central Western Primary Markets**

| Week Ending | Cases of Eggs | | | Pounds of Poultry (000 omitted) | | | Pounds of Young Stock (000 omitted) | | | Pounds of Fowl (000 omitted) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1939 | 1938 | % Chg. | 1939 | 1938 | % Chg. | 1939 | 1938 | % Chg. | 1939 | 1938 | % Chg. |
| July 1 | 123,819 | 113,990 | + 8.62 | 2,880 | 3,002 | – 4.06 | 822 | 897 | – 8.31 | 1,879 | 1,919 | – 2.05 |
| July 8 | 111,570 | 98,470 | +13.30 | 2,703 | 2,663 | + 1.52 | 891 | 894 | – 0.27 | 1,667 | 1,635 | + 1.98 |
| July 15 | 106,370 | 99,421 | + 6.99 | 3,164 | 2,668 | +18.56 | 1,165 | 985 | +18.34 | 1,878 | 1,561 | +20.30 |
| July 22 | 93,303 | 90,469 | + 3.13 | 4,150 | 3,139 | +32.20 | 1,539 | 1,360 | +13.14 | 2,458 | 1,653 | +48.70 |
| July 29 | 83,386 | 76,899 | + 8.43 | 3,791 | 3,407 | +11.26 | 1,529 | 1,763 | –13.28 | 2,133 | 1,522 | +40.09 |

year earlier. Increases were noted in all regions except the North Atlantic and Far Western States. The greatest increase occurred in the West North Central States, which comprises Kansas, Missouri, Nebraska, Iowa, Minnesota, and the Dakotas.

Deliveries of eggs to country packing plants in the Central Western area have been considerably greater during the entire season this year than last, even since the seasonal trend downward has been rather marked. Comparisons with a year ago, however, do not reveal increases now as great as those earlier in the season, but weekly reports since July 1 show current deliveries still averaging around 10 per cent above those of July 1938. These reports check also with information on terminal market receipts. Arrivals during June at New York, Chicago, Philadelphia, and Boston were 5 per cent above those of June 1938, more than half of these eggs coming from the West North Central States. This area alone showed an increase of 12 per cent over a year earlier. Market receipts since July 1 at these same markets are above those of last year by close to 15 per cent. Particularly noticeable in market receipts data is the sharp drop this year in receipts of Pacific Coast eggs at Eastern markets. The June reduction was 57 per cent, and for the calendar year up to July 1 was 63 per cent. Country packing plants on the Pacific Coast have reported much lighter receipts during the entire year than in 1938, which partly explains the lighter movement to the East. Carlot shipments from the West Coast States for the 5 months January to May, inclusive, were only 594 cars this year compared with 1,134 cars during the corresponding period of 1938.

Live poultry markets were irregular during July. Early in the month, trading was active enough to keep supplies fairly well cleaned up, and some slight price advances occurred. Later, however, the situation changed, buying demand fell off, and price declines occurred. Fowl appear to have been in the best position, for most of the weakness centered in chickens and broilers. Prices continue below last year.

Receipt figures available on live poultry indicate lighter arrivals at New

### Receipts of Eggs (Cases) at 4 Markets*

| Geographic sections | June 1939 | June 1938 | June % change | Jan. to June, Inc. 1939 | Jan. to June, Inc. 1938 | Jan. to June, Inc. % change |
|---|---|---|---|---|---|---|
| New England | 26,011 | 22,914 | + 13.52 | 212,702 | 168,887 | + 25.94 |
| Middle Atlantic | 193,232 | 159,802 | + 20.92 | 1,201,839 | 1,005,790 | + 19.49 |
| South Atlantic | 21,955 | 22,336 | − 1.71 | 194,343 | 179,960 | + 7.99 |
| East North Central | 309,993 | 310,919 | − 0.30 | 1,962,089 | 1,839,704 | + 6.65 |
| West North Central | 904,690 | 805,514 | + 12.31 | 5,250,079 | 4,536,131 | + 15.74 |
| South Central | 1,752 | 7,080 | − 75.26 | 52,709 | 90,514 | − 41.77 |
| Mountain | 29,089 | 45,131 | − 35.55 | 160,271 | 286,506 | − 44.06 |
| Pacific | 25,874 | 61,138 | − 57.68 | 136,689 | 369,710 | − 63.03 |
| Miscellaneous | 484 | 427 | + 13.35 | 3,234 | 3,428 | − 5.66 |
| TOTAL | 1,513,080 | 1,435,261 | + 5.42 | 9,173,955 | 8,480,630 | + 8.18 |

### Receipts of Dressed Poultry (pounds) at 4 Markets*

| Geographic sections | June 1939 | June 1938 | June % change | Jan. to June, Inc. 1939 | Jan. to June, Inc. 1938 | Jan. to June, Inc. % change |
|---|---|---|---|---|---|---|
| New England | 2,392,212 | 1,403,722 | + 70.42 | 6,222,330 | 5,146,936 | + 20.89 |
| Middle Atlantic | 6,557,120 | 5,444,886 | + 20.43 | 17,226,143 | 14,762,672 | + 16.69 |
| South Atlantic | 1,722,295 | 683,630 | +151.93 | 8,721,027 | 3,701,867 | +135.58 |
| East North Central | 3,836,537 | 2,286,020 | + 67.83 | 18,675,746 | 11,358,028 | + 64.43 |
| West North Central | 10,687,008 | 9,570,899 | + 11.66 | 53,066,360 | 40,002,955 | + 32.66 |
| South Central | 1,553,938 | 1,524,249 | + 1.95 | 11,697,669 | 12,580,432 | − 7.02 |
| Mountain | 194,535 | 590 | +32872.03 | 1,970,496 | 1,309,057 | + 50.53 |
| Pacific | 928,014 | 424,774 | +118.47 | 4,318,632 | 6,069,897 | − 28.85 |
| Miscellaneous | — | — | — | — | — | — |
| TOTAL | 27,871,659 | 21,338,770 | + 30.62 | 121,898,403 | 94,931,844 | + 28.41 |

* New York, Chicago, Philadelphia, and Boston.

York during all of this year than during corresponding periods of 1938. The decrease in June was about 25 per cent, and for the first half of the year about 20 per cent. The reverse situation has prevailed at Chicago where receipts have exceeded those of last year. The calendar year decrease at New York up to July 1 was the equivalent of a thousand cars; at Chicago during the same period the increase was approximately 400 cars.

Receipts of live poultry at Central Western packing plants continue to show sizable increases over a year ago, with young stock coming more prominently into the picture. During the last half of June and first week of July, a seasonal reduction in these receipts was indicated, but the report for the week ending July 15 showed a sharp increase over the preceding week.

Receipts of dressed poultry at terminal markets are still running much heavier than a year ago. The increase in June alone was 31 per cent, and for the half year to July it was 28 per cent. This calendar year increase in terms of volume represents 27 million pounds. Part of this increase is found in the heavier stocks of frozen poultry in cold storage. The U. S. storage report for July 1 was 67½ million pounds, compared with 53½ million pounds a year earlier. These stocks are now being reduced, according to weekly reports for the 35 cities. The reduction during the first 3 weeks of this month approximated 3 per cent. Stocks in the 35 cities on July 1 were 11 million pounds heavier than a year earlier, but on July 22 were only 9 million pounds heavier. This change is accounted for by the fact that there have been reductions this year whereas in July 1938 increases were taking place. The low point on total U. S. stocks of frozen poultry in 1938 was reached June 1. This year, the above July 22 figure for the 35 cities, in which approximately 75 per cent of the poultry is stored, is the lowest reported to date.

—Comment from Monthly Egg and Poultry Markets Review,

## Egg-Feed Ratios

### New York Egg-Feed Ratio

| Week Ending | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1939 | 1938 | 1937 | Avg. Egg Price per Doz. (Dollars) 1939 | 1938 | 1937 | Avg. Feed Cost per 100 lbs. (Dollars) 1939 | 1938 | 1937 |
|---|---|---|---|---|---|---|---|---|---|
| July 6 | 7.5 | 6.5 | 9.2 | .228 | .264 | .272 | 1.71 | 1.70 | 2.50 |
| July 13 | 7.5 | 6.1 | 9.5 | .222 | .285 | .262 | 1.68 | 1.73 | 2.55 |
| July 20 | 7.5 | 6.1 | 9.7 | .222 | .281 | .226 | 1.64 | 1.71 | 2.51 |
| July 27 | 6.9 | 6.7 | 8.7 | .230 | .274 | .267 | 1.59 | 1.69 | 2.32 |

### Chicago Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration 1939 | 1938 | 10-Yr. Av. 1929-38 | Price of Fresh Graded Firsts (Dollars) 1939 | 1938 | Cost of Ration per 100 lbs. (Dollars) 1939 | 1938 |
|---|---|---|---|---|---|---|---|
| July 1 | 6.71 | 5.50 | 6.82 | .152 | .195 | 1.023 | 1.075 |
| July 8 | 6.61 | 5.33 | 6.92 | .152 | .202 | 1.008 | 1.080 |
| July 15 | 6.37 | 5.31 | 6.97 | .152 | .209 | .972 | 1.110 |
| July 22 | 6.05 | 5.40 | 6.75 | .152 | .202 | .922 | 1.092 |
| July 29 | 5.76 | 5.12 | 6.59 | .152 | .207 | .879 | 1.061 |

## Eggs in Storage

### Storage Holdings of Eggs

| Kind | July 1 5-Year Avg. 1934-38 | July 1 1938 | June 1 1939 | July 1 1939 | % Change July '38-July '39 |
|---|---|---|---|---|---|
| | | (Thousands) | | | |
| Shell Eggs (cases) | 7,684 | 6,255 | 5,880 | 6,971 | +11.4 |
| Frozen Eggs (lbs.) | 127,812 | 138,510 | 117,900 | 140,377 | + 1.3 |
| Frozen Case Equivalent (cases)* | 3,652 | 3,957 | 3,369 | 4,011 | + 1.3 |
| Total (cases) | 11,336 | 10,212 | 9,249 | 10,982 | + 7.5 |

* Frozen eggs are converted on the basis of 35 lbs. to the case.

The monthly cold storage report showed July 1 stocks of shell eggs at 6,971,000 cases, compared with 6,255,000 cases a year earlier, and a July 1 average (1934-38) of 7,684,000 cases. Weekly reports since July 1 indicate a continued into-storage movement during the first half of the month, although the weekly rate of increase was much less than in June. First indication that this year's peak has been reached appeared in the 35 cities' report for July 22, which revealed a slight reduction in stocks under the preceding week. While the U. S. report for August 1 will show an increase over August 1, 1938, these weekly reports point to a slightly smaller increase than that shown on July 1. Last year, eggs continued to move into storage throughout July, but total U. S. stocks on August 1, 1938, were only 6,411,000 cases, the fewest for that date in more than 20 years. The July increase in 1938 was 156,000 cases, and the average for July in the past 5 years, including 1938, is 190,000 cases. This year's increase will likely be less than either of these quantities. Frozen eggs in storage on July 1 totaled 140 million pounds, an increase of 2 million over a year earlier. Weekly reports show much the same trend since July 1 as on shell eggs, i.e., increases through the first half of July, and a slight reduction for the week which ended July 22. These reports also show that stocks have continued to exceed those of a year ago by about 2 million pounds.

—Comment from Monthly Egg and Poultry Markets Review.

## Poultry in Storage

### Storage Holdings of Frozen Poultry

| Kind | July 1 5-Year Avg. 1934-38 | July 1 1938 | June 1 1939 | July 1 1939 | % Change July '38-July '39 |
|---|---|---|---|---|---|
| | (Thousand Pounds) | | | | |
| Broilers | 4,883 | 4,876 | 6,241 | 6,718 | +37.7 |
| Fryers | 2,419 | 2,513 | 4,892 | 3,380 | +34.5 |
| Roasters | 7,410 | 6,948 | 11,398 | 7,811 | +12.4 |
| Fowls | 8,906 | 9,700 | 11,983 | 13,680 | +41.0 |
| Turkeys | 13,750 | 11,938 | 17,414 | 17,368 | +45.4 |
| Ducks | 3,562 | 6,050 | 1,998 | 4,931 | –18.4 |
| Miscellaneous | 11,333 | 11,407 | 12,870 | 13,533 | +18.6 |
| Total | 52,263 | 53,432 | 66,796 | 67,421 | +26.1 |

## Hatchery Operations

### Eggs Set, Chicks Hatched, and Chicks Booked by Commercial Hatcheries

| Geographic Section | No. of Plants | Eggs Set During June | | | Salable Chicks Hatched During June | | | Chicks Booked July 1 for July or Later Delivery | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1939 | 1938 | % chg. | 1939 | 1938 | % chg. | No. of Plants | 1939 | 1938 | % chg. |
| | | Thousands | | | Thousands | | | | Thousands | | |
| N. Eng. | 12 | 1,221 | 1,165 | + 5 | 707 | 828 | –15 | 8 | 1,432 | 1,169 | +22 |
| Mid. Atl. | 32 | 498 | 467 | + 7 | 622 | 499 | +25 | 12 | 127 | 125 | + 2 |
| S. Atl. | 18 | 578 | 463 | +25 | 412 | 371 | +11 | 8 | 389 | 266 | +46 |
| E. N. Cent. | 80 | 2,377 | 2,439 | – 3 | 2,613 | 2,227 | +17 | 34 | 259 | 248 | + 4 |
| W. N. Cent. | 62 | 2,580 | 2,960 | –13 | 3,342 | 3,144 | + 6 | 15 | 228 | 310 | –26 |
| S. Cent. | 14 | 243 | 179 | +36 | 309 | 212 | +46 | 3 | 221 | 6 | +3,583 |
| Mountain | 16 | 52 | 224 | –77 | 268 | 267 | — | 2 | 4 | 39 | –90 |
| Pacific | 27 | 660 | 502 | +31 | 500 | 432 | +16 | 14 | 524 | 466 | +12 |
| U. S. | 261 | 8,209 | 8,399 | – 2 | 8,773 | 7,980 | +10 | 96 | 3,184 | 2,629 | +21 |
| Jan.-June Inc. | | 153,880 | 130,922 | +18 | 104,767 | 86,416 | +21 | | 76,390 | 62,810 | +22 |

Eggs set in June failed to keep pace with the increase in the number of chicks hatched. This continues to indicate a more rapid seasonal curtailment in hatchery operations this year than last. Reports from the foregoing plants showed that approximately 2 per cent fewer eggs were set by hatcheries in June this year than last.

The cumulative production of chicks as the season advances continues to exceed that of any comparable period of record. Production for the months of January to June, inclusive, is 22 per cent larger than that of the corresponding months of last year, and 32 per cent above the 1933-37 average for the period.

## Egg and Poultry Exports and Imports

### Exports of Eggs and Poultry

| Commodity | | June 1939 | June 1938 | Jan. to June, Inc. 1939 | Jan. to June, Inc. 1938 |
|---|---|---|---|---|---|
| Eggs in shell | (doz.) | 213,059 | 166,116 | 1,270,627 | 1,125,479 |
| Eggs and yolks, frozen, dried, or canned | (lbs.) | Not available | Not available | Not available | Not available |
| Live poultry | (lbs.) | 11,207 | 8,673 | 113,628 | 44,842 |
| Dressed poultry | (lbs.) | 368,444 | 168,205 | 1,163,889 | 779,043 |

### Imports of Eggs and Poultry

| | | | | | |
|---|---|---|---|---|---|
| Eggs in shell | (doz.) | 19,821 | 21,750 | 169,235 | 110,054 |
| Whole eggs, dried | (lbs.) | 0 | 2,700 | 32,000 | 123,050 |
| Whole eggs, frozen | (lbs.) | 0 | 336 | 420 | 938 |
| Yolks, dried | (lbs.) | 53,400 | 5,800 | 97,925 | 177,105 |
| Yolks, frozen | (lbs.) | 0 | 36,000 | 25,330 | 344,050 |
| Egg albumen, dried | (lbs.) | 20,000 | 20,000 | 299,983 | 322,774 |
| Egg albumen, frozen | (lbs.) | 0 | 0 | 0 | 30 |
| Live poultry | (lbs.) | 65,925 | 67,582 | 371,423 | 790,160 |
| Dressed poultry | (lbs.) | 2,193 | 62,750 | 112,562 | 354,073 |
| Poultry, prepared | (lbs.) | 42,669 | 32,925 | 564,324 | 342,653 |

## Egg Breaking Operations

### Egg Breaking Operations During June, 1939

| Commodity | | Quantities reported to date for June 1939 | Same firm comparison June 1939 | Same firm comparison June 1938 | % change in 1939 |
|---|---|---|---|---|---|
| | | Pounds | Pounds | | |
| Whole eggs (nothing added) | | 9,425,886 | 9,425,686 | 6,320,415 | + 49 |
| Mixed eggs (plain) | | 754,535 | 754,535 | 561,730 | + 34 |
| Mixed eggs (emulsions, also with sugar, salt, etc.) | | 4,172,451 | 4,172,451 | 1,965,105 | +112 |
| Egg whites (all descriptions) | | 8,673,731 | 8,673,731 | 5,042,639 | + 72 |
| Egg yolks packed | Without salt, sugar, etc. | 3,184,882 | 3,184,882 | 1,594,717 | +100 |
| | With sugar | 2,619,009 | 2,619,009 | 1,786,606 | + 47 |
| | With salt | 976,807 | 976,807 | 1,110,207 | – 12 |
| | All yolk emulsions, including glycerine | 54,810 | 54,810 | 45,156 | + 21 |
| Total—pounds | | 29,862,111 | 29,861,911 | 18,426,575 | + 62 |
| Total—case egg equivalent | | 853,203 | 853,197 | 526,474 | |
| Number of firms reporting | | 59 | 58 | 58 | |

## Poultry Canning Operations

### Poultry Canning Operations During June, 1939

| Commodity | Quantities reported to date for June 1939 | Quantities reported for May 1939 | Same Firm Comparison June 1939 | Same Firm Comparison June 1938 | % change in 1939 |
|---|---|---|---|---|---|
| | Pounds | Pounds | Pounds | | |
| Dressed poultry canned or used in canning | 4,579,132 | 2,840,143 | 4,579,132 | 4,319,856 | + 6 |
| Number of firms reporting | 19 | 21 | 19 | 19 | |

# RESULTS OF LAYING TESTS

Still on top as the 1140 standard test pens go into the tenth month of this laying test year, are Kauder's Leghorns at Storrs. They have a well-established lead and appear to be going strong. Thomas Mettler's Reds at Hunterdon and Ford's Reds at Maine are holding their own in second and third positions respectively, and Guy Leader's Leghorns at Pennsylvania have moved back into fourth highest notch after a two-months' sojourn in fifth place. Sand Springs Home Farm's Leghorn at Texas rate fifth high on July 1.

Schwegler's Leghorns grabbed the highest honor during June by shelling out 346 eggs good for 361 points. Hens at six different tests tied for the honor of making the most points during June.

Edward N. Larrabee's New Hampshires at Storrs seized the lead in their breed and put some 50 points between themselves and Hubbard Farms' second high New Hampshire pen. A. J. Williams' entry at Florida, which had been leading in this breed for so long, has a good grip on third place.

Dryden's Barred Rocks look down from four of the five highest perches in their breed. David T. Cohen's pen at Central New York slipped past Dryden's Missouri entry and gained third high Barred Rock position as the ninth month of this year sailed by.

Oscar W. Holtzapple still hangs onto the blue ribbon position in the White Rock division, but Riley Poultry Farm's entry at Oklahoma is pressing forward at a rapid rate, overtaking Homestead Farm's Pennsylvania pen during the month, and stepping on the tail feathers of the leaders.

**Correction:** Through an error in the figures supplied to us by the Georgia Laying Test management, the per cent mortality at Georgia to June 1 was given in our July issue as 23.92. This should have been 16.23.

## Twenty Highest Pens, All Breeds, to July 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 2909 | 3135.40 | Storrs |
| Thomas Mettler | Rhode Island Red | 2994 | 3047.60 | Hunterdon, N. J. |
| Ford's Riverbank Farm | Rhode Island Red | 2906 | 2936.35 | Maine |
| Guy A. Leader | White Leghorn | 2782 | 2875.55 | Pennsylvania |
| Sand Springs Home Farm | White Leghorn | 2717 | 2872.60 | Texas |
| John A. Clear | White Leghorn | 2675 | 2846.05 | Hunterdon, N. J. |
| Dryden Poultry Breeding Farm | White Leghorn | 2692 | 2814.45 | Michigan |
| Woodlawn Farm | White Leghorn | 2624 | 2809.10 | Texas |
| Nelson's Leghorn Breeding Farm | White Leg. | 2633 | 2805.85 | Texas |
| Kauder's Pedigreed Leghorns | White Leghorn | 2658 | 2805.00 | Georgia |
| J. J. Warren | Rhode Island Red | 2645 | 2791.95 | Storrs |
| Woodlawn Farm | White Leghorn | 2669 | 2788.35 | Texas |
| W. C. Mullins | Rhode Island Red | 2602 | 2787.60 | Texas |
| Edward N. Larrabee | New Hampshire | 2643 | 2783.00 | Storrs |
| Bryan J. Snell | White Leghorn | 2564 | 2770.65 | Pennsylvania |
| J. J. Warren | Rhode Island Red | 2584 | 2768.55 | Rhode Island |
| Vans R. Otey | Rhode Island Red | 2642 | 2752.55 | Florida |
| Booth Farms and Hatchery | White Leghorn | 2560 | 2751.60 | Oklahoma |
| D. I. Goodenough | Rhode Island Red | 2580 | 2750.40 | Storrs |
| Kauder's Pedigreed Leghorns | White Leghorn | 2629 | 2748.70 | Georgia |

## High Pen in Each Standard Test for June

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Schwegler's Hatchery | White Leghorn | 346 | 361.40 | Western New York |
| W. C. Mullins | Rhode Island Red | 339 | 357.45 | Texas |
| Edward N. Larrabee | New Hampshire | 325 | 343.35 | Storrs |
| Dryden Poultry Breeding Farm | White Leg. | 316 | 338.30 | Michigan |
| Miami Chick Hatchery | White Leghorn | 324 | 335.30 | New York State |
| Bryan J. Snell | White Leghorn | 298 | 324.65 | Pennsylvania |
| Stroehlein Brothers | White Leghorn | 305 | 324.25 | Central New York |
| Ford's Riverbank Farm | Rhode Island Red | 306 | 323.60 | Maine |
| Thomas Mettler | Rhode Island Red | 306 | 316.95 | Hunterdon, N. J. |
| Kauder's Pedigreed Leghorns | White Leghorn | 291 | 315.00 | Georgia |
| R. O. Wagemaker | Rhode Island Red | 284 | 310.25 | Missouri |
| Afton Farm | White Leghorn | 303 | 308.50 | Passaic, N. J. |
| Lone Oak Leghorn Farm | White Leghorn | 295 | 303.30 | Florida |
| Quimby School | White Rock | 272 | 288.90 | Rhode Island |
| Roscoe Hill Hatchery | White Leghorn | 292 | 281.65 | Oklahoma |
| Gold Spot Hatchery | White Leghorn | 274 | 275.25 | Arizona |

## High Pen in Each Breed to July 1—(273 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 2909 | 3135.40 | Storrs |
| Thomas Mettler | Rhode Island Red | 2994 | 3047.60 | Hunterdon, N. J. |
| E. N. Larrabee | New Hampshire | 2643 | 2783.00 | Storrs |
| Dryden Poultry Breeding Farm | Barred Rock | 2637 | 2645.50 | Pennsylvania |
| Lonnie Van Sant | Black Australorp | 2374 | 2507.70 | Arizona |
| Oscar W. Holtzapple | White Rock | 2360 | 2424.70 | Georgia |
| Colonial Poultry Farm | White Wyandotte | 2262 | 2377.15 | Texas |
| Ben G. Monroe | Ancona | 2159 | 2216.60 | Texas |
| Harry L. Phillips | Columbian Rock | 1851 | 1938.15 | Missouri |
| Colonial Poultry Farm | White Minorca | 1843 | 1935.10 | Georgia |
| S. E. Raymond | Lamona | 1790 | 1905.60 | Storrs |
| Highland Poultry Farm | White Giant | 1666 | 1810.00 | Rhode Island |
| Lindstrom Poultry Farm | Buff Minorca | 1754 | 1785.50 | Missouri |
| Donald C. Chandler | Silver Laced Wyandotte | 1763 | 1751.65 | Maine |
| Wm. W. Lehman | Buff Leghorn | 1689 | 1700.75 | Pennsylvania |
| Iowa Master Breeders | Buff Orpington | 1468 | 1523.00 | Missouri |
| Hall Brothers Hatchery | Cross | 1415 | 1471.15 | New York State |
| Cedarlaid Poultry Farm | Brown Leghorn | 1674 | 1470.90 | Florida |
| Blue Ribbon Farms | Rhode Island White | 1420 | 1448.60 | Texas |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 1243 | 1309.65 | Maine |

## High Pen in Each Standard Test to July 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 2909 | 3135.40 | Storrs |
| Thomas Mettler | Rhode Island Red | 2994 | 3047.60 | Hunterdon, N. J. |
| Ford's Riverbank Farm | Rhode Island Red | 2906 | 2936.35 | Maine |
| Guy A. Leader | White Leghorn | 2782 | 2875.55 | Pennsylvania |
| Sand Springs Home Farm | White Leghorn | 2717 | 2872.60 | Texas |
| Dryden Poultry Breeding Farm | White Leg. | 2692 | 2814.45 | Michigan |
| Kauder's Pedigreed Leghorns | White Leghorn | 2658 | 2805.00 | Georgia |
| J. J. Warren | Rhode Island Red | 2584 | 2768.55 | Rhode Island |
| Vans R. Otey | Rhode Island Red | 2642 | 2752.55 | Florida |
| Booth Farms and Hatchery | White Leghorn | 2560 | 2751.60 | Oklahoma |
| R. O. Wagemaker | Rhode Island Red | 2542 | 2740.70 | Missouri |
| Content Farms | White Leghorn | 2592 | 2675.65 | Central New York |
| George A. Pearce | Rhode Island Red | 2627 | 2642.00 | Passaic, N. J. |
| J. J. Warren | Rhode Island Red | 2473 | 2572.40 | New York State |
| E. B. Parmenter | Rhode Island Red | 2458 | 2548.25 | Western New York |
| J. A. Hanson | White Leghorn | 2463 | 2532.55 | Arizona |

## High Hen in Each Standard Test for June

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kerr Chickeries | Rhode Island Red | 30 | 33.00 | Western New York |
| E. B. Parmenter | Rhode Island Red | 30 | 33.00 | New York State |
| Baker Poultry Farm | White Leghorn | 30 | 33.00 | Central New York |
| Colonial Poultry Farm | Barred Rock | 30 | 33.00 | Missouri |
| Ford's Riverbank Farm | Rhode Island Red | 30 | 33.00 | Michigan |
| W. A. Seidel | White Leghorn | 30 | 33.00 | Texas |
| J. A. Hanson | White Leghorn | 30 | 32.95 | Storrs |
| Riley Poultry Farm | White Leghorn | 30 | 32.90 | Oklahoma |
| E. B. Parmenter | Rhode Island Red | 30 | 32.80 | Passaic, N. J. |
| Colonial Poultry Farm | White Leghorn | 30 | 32.80 | Pennsylvania |
| Kauder's Pedigreed Leghorns | White Leghorn | 30 | 32.60 | Georgia |
| Ford's Riverbank Farm | Rhode Island Red | 30 | 32.50 | Maine |
| Hockhockson Farm | Barred Rock | 30 | 31.40 | Hunterdon, N. J. |
| Becker's Leghorn Farm | White Leghorn | 29 | 31.10 | Florida |
| Creighton Brothers | White Leghorn | 29 | 30.90 | Rhode Island |
| E. S. McSweeny | Black Australorp | 27 | 28.75 | Arizona |

## High Hen in Each Breed to July 1—(273 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| A. E. Guinn | White Leghorn | 262 | 286.20 | Georgia |
| Dryden Poultry Breeding Farm | Barred Rock | 253 | 273.90 | Missouri |
| Ford's Riverbank Farm | Rhode Island Red | 251 | 271.50 | Michigan |
| S. C. Houck | New Hampshire | 242 | 259.65 | Pennsylvania |
| E. S. McSweeny | Black Australorp | 244 | 259.25 | Arizona |
| Lindstrom Poultry Farm | White Wyandotte | 225 | 245.90 | Georgia |
| Homestead Farm | White Rock | 226 | 245.40 | Storrs |
| Raymond Murphy | White Giant | 226 | 242.10 | Missouri |
| Colonial Poultry Farm | White Minorca | 204 | 217.40 | Georgia |
| Eriksen's Ancona Yards | Ancona | 216 | 213.30 | Storrs |
| Donald C. Chandler | Silved Laced Wyandottes | 197 | 211.00 | Maine |
| S. E. Raymond | Lamona | 190 | 208.25 | Storrs |
| Blue Ribbon Farms | Rhode Island White | 184 | 200.05 | Texas |
| Harry L. Phillips | Columbian Rock | 201 | 196.40 | Missouri |
| Lindstrom Poultry Farm | Buff Minorca | 197 | 190.15 | Rhode Island |
| Laclede Hatchery | Buff Orpington | 194 | 189.90 | Florida |
| Hall Brothers Hatchery | Cross | 171 | 186.35 | New York State |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 171 | 184.45 | Maine |
| Cedarlaid Poultry Farm | Brown Leghorn | 187 | 178.70 | Florida |
| Wm. W. Lehman | Buff Leghorn | 176 | 173.95 | Pennsylvania |

## High Hen in Each Standard Test to July 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| A. E. Guinn | White Leghorn | 262 | 286.20 | Georgia |
| Kauder's Pedigreed Leghorns | White Leghorn | 255 | 278.85 | Storrs |
| Dryden Poultry Breeding Farm | Barred Rock | 253 | 273.90 | Missouri |
| Ford's Riverbank Farm | Rhode Island Red | 251 | 271.50 | Michigan |
| Ford's Riverbank Farm | Rhode Island Red | 255 | 270.95 | Maine |
| Sunshine Egg Farm | White Leghorn | 256 | 268.45 | Florida |
| J. J. Warren | Rhode Island Red | 245 | 265.15 | Rhode Island |
| W. A. Seidel | White Leghorn | 246 | 261.45 | Texas |
| C. T. Darby | White Leghorn | 250 | 261.25 | Passaic, N. J. |
| Thomas Mettler | Rhode Island Red | 243 | 260.90 | Hunterdon, N. J. |
| Guy A. Leader | White Leghorn | 254 | 260.55 | Pennsylvania |
| E. S. McSweeny | Black Australorp | 244 | 259.25 | Arizona |
| Stroehlein Brothers | White Leghorn | 235 | 256.55 | Western New York |
| J. J. Warren | Rhode Island Red | 230 | 251.35 | New York State |
| Schwegler's Hatchery | White Leghorn | 244 | 250.45 | Central New York |
| Rucker's Breeding Farm | White Leghorn | 250 | 246.15 | Oklahoma |

## 20 Highest White Leghorn Pens in Country to July 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Kauder's Pedigreed Leghorns | 2909 | 3135.40 | Storrs |
| Guy A. Leader | 2782 | 2875.55 | Pennsylvania |
| Sand Springs Home Farm | 2717 | 2872.60 | Texas |
| John A. Clear | 2675 | 2846.05 | Hunterdon, N. J. |
| Dryden Poultry Breeding Farm | 2692 | 2814.45 | Michigan |
| Woodlawn Farm | 2624 | 2809.10 | Texas |
| Nelson's Leghorn Breeding Farm | 2633 | 2805.85 | Texas |
| Kauder's Pedigreed Leghorns | 2658 | 2805.00 | Georgia |
| Woodlawn Farm | 2669 | 2788.35 | Texas |
| Bryan J. Snell | 2564 | 2770.65 | Pennsylvania |
| Booth Farms and Hatchery | 2560 | 2751.60 | Oklahoma |
| Kauder's Pedigreed Leghorns | 2629 | 2748.70 | Georgia |
| Guy A. Leader | 2609 | 2724.00 | Storrs |
| I. Commer | 2614 | 2711.30 | Texas |
| I. Commer | 2626 | 2705.55 | Texas |
| Foreman Poultry Farm | 2706 | 2703.70 | Texas |
| Dublin Poultry Farm | 2624 | 2697.50 | Georgia |
| St. Paul Hatchery | 2589 | 2695.20 | Texas |
| Erath Egg Farm | 2590 | 2692.05 | Texas |
| Booth Farms and Hatchery | 2582 | 2690.60 | Florida |

## 20 Highest Rhode Island Red Pens in Country to July 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Thomas Mettler | 2994 | 3047.60 | Hunterdon, N. J. |
| Ford's Riverbank Farm | 2906 | 2936.35 | Maine |
| J. J. Warren | 2645 | 2791.95 | Storrs |
| W. C. Mullins | 2602 | 2787.60 | Texas |
| J. J. Warren | 2584 | 2768.55 | Rhode Island |
| Vans R. Otey | 2642 | 2752.55 | Florida |
| D. I. Goodenough | 2580 | 2750.40 | Storrs |
| Ralph W. Anderson | 2555 | 2743.25 | Storrs |
| R. O. Wagemaker | 2542 | 2740.70 | Missouri |
| Ford's Riverbank Farm | 2653 | 2720.35 | Michigan |
| Donald L. Crooks | 2557 | 2698.95 | Storrs |
| J. J. Warren | 2522 | 2678.50 | Pennsylvania |
| Wene Chick Farms | 2581 | 2672.90 | Storrs |
| J. J. Warren | 2479 | 2671.05 | Storrs |
| E. B. Parmenter | 2566 | 2666.65 | Florida |
| R. E. and F. H. Kendrick | 2496 | 2654.40 | Rhode Island |
| George A. Pearce | 2627 | 2642.00 | Passaic, N. J. |
| L. D. Bartholomew | 2583 | 2638.45 | Storrs |
| George A. Pearce | 2578 | 2606.45 | Hunterdon, N. J. |
| Thomas H. Mettler | 2467 | 2576.90 | Pennsylvania |

## 20 Highest New Hampshire Pens in Country to July 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Edward N. Larrabee | 2643 | 2783.00 | Storrs |
| Hubbard Farms | 2636 | 2729.25 | Storrs |
| A. J. Williams | 2644 | 2706.05 | Florida |
| Steelman Poultry Farms | 2443 | 2569.40 | Storrs |
| Del Rio Farm | 2388 | 2531.00 | Arizona |
| W. H. Boulware | 2416 | 2509.45 | Florida |
| A. J. Williams | 2406 | 2507.55 | Florida |
| Fuzzydele Farms | 2316 | 2498.20 | Pennsylvania |
| Thomas J. Harrold | 2455 | 2470.70 | Georgia |
| S. C. Houck | 2300 | 2393.40 | Pennsylvania |
| Goodwin's Poultry Farm | 2301 | 2384.95 | Storrs |
| James H. Horne | 2287 | 2382.95 | Maine |
| Fuzzydele Farms | 2302 | 2382.45 | Western New York |
| Colonial Poultry Farm | 2321 | 2373.50 | Arizona |
| W. H. Boulware | 2332 | 2367.60 | Georgia |
| Eben Wood | 2254 | 2356.55 | Pennsylvania |
| Eben Wood | 2236 | 2348.50 | Passaic, N. J. |
| Quimby School | 2410 | 2336.75 | Maine |
| Eben Wood | 2240 | 2332.85 | Maine |
| Stroehlein Brothers | 2287 | 2324.10 | Passaic, N. J. |

## 20 Highest Barred Plymouth Rock Pens in Country to July 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Dryden Poultry Breeding Farm | 2637 | 2645.50 | Pennsylvania |
| Dryden Poultry Breeding Farm | 2562 | 2608.95 | Central New York |
| David T. Cohen | 2444 | 2525.55 | Central New York |
| Dryden Poultry Breeding Farm | 2399 | 2512.40 | Missouri |
| Dryden Poultry Breeding Farm | 2414 | 2461.95 | Storrs |
| Fuzzydele Farms | 2333 | 2425.25 | Storrs |
| Charles Lathrop | 2300 | 2417.75 | Passaic, N. J. |
| Riley Poultry Farm | 2428 | 2401.70 | Michigan |
| R. C. E. Wallace | 2334 | 2398.05 | Central New York |
| Egyptian Hatchery | 2330 | 2366.80 | Missouri |
| Eben Wood | 2322 | 2340.75 | Maine |
| Charles Lathrop | 2313 | 2322.75 | Hunterdon, N. J. |
| R. C. Cobb | 2175 | 2316.75 | Storrs |
| Riley Poultry Farm | 2244 | 2296.40 | Georgia |
| Gulfcoast Hatchery | 2265 | 2267.80 | Florida |
| Weber Duck Farm | 2102 | 2247.20 | Rhode Island |
| R. C. E. Wallace | 2148 | 2243.10 | Oklahoma |
| Weber Duck Farm | 2144 | 2233.15 | Michigan |
| David T. Cohen | 2269 | 2230.05 | Arizona |
| Frank Teasdale | 2199 | 2224.10 | Michigan |

## 20 Highest White Plymouth Rock Pens in Country to July 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Oscar W. Holtzapple | 2360 | 2424.70 | Georgia |
| Riley Poultry Farm | 2446 | 2418.30 | Oklahoma |
| Homestead Farm | 2341 | 2360.60 | Pennsylvania |
| Quimby School | 2238 | 2348.25 | Rhode Island |
| Kalerok Farm | 2185 | 2306.20 | Rhode Island |
| Oscar W. Holtzapple | 2241 | 2290.80 | Pennsylvania |
| Homestead Farm | 2229 | 2288.60 | Storrs |
| Kalerok Farm | 2167 | 2259.35 | Pennsylvania |
| Red Barn Poultry Farm | 2137 | 2238.35 | Storrs |
| Albert C. Lawton | 2066 | 2172.90 | Rhode Island |
| Tender Broiler Hatchery | 2134 | 2163.35 | Oklahoma |
| Earl C. Dunham | 2082 | 2153.40 | Georgia |
| Riley Poultry Farm | 2094 | 2064.40 | Michigan |
| Lewis Farms | 2024 | 2057.10 | Rhode Island |
| Booth Farms and Hatchery | 1960 | 2054.15 | Missouri |
| Miami Chick Hatchery | 1992 | 2053.00 | New York State |
| Faith Farm | 2039 | 2045.15 | New York State |
| E. A. Hirt | 1940 | 2045.05 | Storrs |
| Kalerok Farm | 1922 | 2027.60 | Storrs |
| E. A. Hirt | 1882 | 2011.50 | Rhode Island |

## Average Production in Each Test to July 1

| Test | No. Birds | Eggs Per Bird | Points Per Bird | Egg Wt. Per Doz. | Per Cent Mortality for June | Per Cent Mortality to July 1 |
|---|---|---|---|---|---|---|
| Texas | 910 | 165.22 | 171.68 | 24.9 | 2.63 | 19.34 |
| Arizona | 260 | 163.81 | 167.02 | 24.4 | 1.53 | 11.53 |
| Pennsylvania | 1,131 | 159.31 | 164.54 | 24.7 | 1.41 | 11.58 |
| Storrs* | 1,300 | 156.87 | 162.56 | 24.8 | 2.53 | 13.84 |
| Hunterdon, N. J. | 650 | 155.58 | 159.22 | 24.5 | 2.00 | 19.07 |
| Passaic, N. J. | 1,001 | 155.44 | 158.04 | 24.3 | 2.29 | 15.38 |
| Western New York | 884 | 153.94 | 157.39 | 24.5 | 1.80 | 9.38 |
| Georgia | 1,300 | 153.92 | 155.09 | 24.0 | 5.46 | 21.69 |
| Florida | 1,248 | 152.85 | 153.41 | 24.0 | 2.00 | 14.90 |
| Oklahoma | 650 | 147.27 | 151.29 | 24.6 | 1.53 | 16.15 |
| Central New York | 910 | 144.92 | 148.52 | 24.5 | 2.30 | 12.96 |
| Michigan | 897 | 143.29 | 147.24 | 24.6 | 3.56 | 20.40 |
| Rhode Island | 650 | 140.15 | 147.10 | 25.1 | 2.61 | 18.30 |
| Missouri | 780 | 130.29 | 137.08 | 25.2 | 2.17 | 21.53 |
| New York State* | 1,222 | 133.54 | 133.37 | 23.9 | 2.53 | 16.20 |
| Maine | 1,027 | 127.22 | 128.61 | 24.2 | 3.31 | 24.14 |
| All Tests | 14,820 | 148.72 | 152.10 | 24.5 | 2.61 | 16.76 |

* One week behind other tests in opening because of hurricane.

## High Pen, Each Breed, in Illinois Non-Standard Test to July 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Egyptian Hatchery | White Leghorn | 1633 | 1696.05 |
| Egyptian Hatchery | Barred Rock | 1580 | 1594.55 |
| Mrs. Curtis Manshak | White Rock | 1349 | 1390.25 |
| Illinois Hatchery | Rhode Island Red | 1208 | 1308.90 |
| Corn Belt Hatchery | New Hampshire | 1068 | 1154.55 |
| Belldear Hatchery | White Wyandotte | 961 | 965.70 |
| Macomb Hatchery | Buff Orpington | 939 | 961.30 |
| H. R. Harnes | Brown Leghorn | 826 | 769.40 |
| Wallace Moody | Buff Rock | 676 | 677.60 |

## 5 High Pens, R. O. P. Progeny Test, Paterson, N. J. to July 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Stroehlein Brothers | White Leghorn | 2884 | 3002 |
| E. B. Parmenter | Rhode Island Red | 2782 | 2905 |
| Wegatepa Farms | Rhode Island Red | 2793 | 2820 |
| Creighton Brothers | White Leghorn | 2714 | 2760 |
| Francis J. Townsend | White Leghorn | 2809 | 2716 |

## High Pen, Each Breed, Vineland, N. J., Hen Test to July 1

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Sebold Poultry Farm | White Leghorn | 1731 | 1845 | Two-Year |
| Nedlar Farm | New Hampshire | 1452 | 1566 | Two-Year |
| J. J. Warren | Rhode Island Red | 1380 | 1506 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 1045 | 1132 | Two-Year |
| J. A. Hanson | White Leghorn | 1204 | 1299 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 1116 | 1196 | Four-Year |
| Raymond Gardner | White Rock | 433 | 467 | Four-Year |

## High Pen, Each Breed, Vineland, N. J., Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| J. J. Warren | Rhode Island Red | 5286 | 5726 | Two-Year |
| Sebold Poultry Farm | White Leghorn |  | 5483 | Two-Year |
| Nedlar Farm | New Hampshire | 5084 | 5463 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 4088 | 4324 | Two-Year |
| J. A. Hanson | White Leghorn | 7108 | 7640 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 9780 | 10,314 | Four-Year |
| Raymond Gardner | White Rock | 5385 | 5711 | Four-Year |

## High Pen, Each Breed, in Pennsylvania Hen Test to July 1

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Booth Farms and Hatchery | White Leghorn | 1953 | 2120.10 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 1429 | 1558.00 | Two-Year |
| Fuzzydele Farms | New Hampshire | 1259 | 1377.55 | Two-Year |
| E. B. Parmenter | Rhode Island Red | 1110 | 1216.50 | Two-Year |
| Fuzzydele Farms | Barred Rock | 1411 | 1530.40 | Mixed-Age |
| A. M. Wolgemuth | White Leghorn | 1015 | 1104.05 | Mixed-Age |
| Schwegler's Hatchery | New Hampshire | 724 | 776.10 | Mixed-Age |

## High Pen, Each Breed, in Pennsylvania Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Lindstrom Poultry Farm | White Leghorn | 5521 | 5842.35 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 4599 | 4885.40 | Two-Year |
| E. B. Parmenter | Rhode Island Red | 4446 | 4702.00 | Two-Year |
| Fuzzydele Farms | New Hampshire | 4333 | 4565.25 | Two-Year |

## Among Our Contributors

**L. C. Beall,** (p. 483) is one of the group of Pacific Coast breeders of White Leghorns who came into prominence in the early twenties through the articles of the late Grant Curtis in the Reliable Poultry Journal and whose stock gave considerable impetus to the breeding for high egg production in America.

Mr. Beall started in poultry on Vashon Island, Washington, in 1915. He is president of the Washington Poultry Improvement Association, director of the Washington Cooperative Egg and Poultry Association, director of the Washington Baby Chick Association, and is a director or officer in several other poultry organizations as well.

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## Sunflowers Make Good Shade

On some of our ranges, we have good trees which supply the best kind of shade to the growing stock. On other ranges, we have to grow shade. For this purpose, we find nothing to equal Mammoth Russian Sunflowers. The seed is planted thick in long strips, 4 or 5 rows wide. Early planting in April is desirable, so that the plants will provide shade by the time hot weather comes. In the fall, when the seed ripens, a few of the plants may be broken down each day on various parts of the range, and the young stock will harvest it.

—Hannah's R. O. P. Service Bulletin, W. S. Hannah & Sons, Grand Rapids, Mich.

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—Newspaper Article.

◄◄ IN SIAM, hollow bamboo poles are sometimes slipped over a chicken's body and allowed to remain. The long birds thus produced are considered of extra fine flavor.

—Utah Poultry Co-operator, April, 1939.

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Vol. 1, No. 9 September, 1939

# Development of the Hatching Industry in the United States

By E. A. Nisson
Petaluma, California

*Condensed from a Talk*

ARTIFICIAL incubation and the selling of baby chicks are almost as old — perhaps older — than written history.

The reports of travelers and historians concerning incubation in Egypt inspired the great French physicist, Reaumur, to experiment with artificial incubation and brooding in the 18th century. Reaumur, with the Egyptian methods and practices in mind, suggested that bakers utilize the surplus heat of their ovens to incubate chicks and supply them to farmers. This recommendation of Reaumur's evidently was not followed, nor was any extensive practical use made of artificial incubation until over a century later.

## First American Incubator Patent

In Europe and in the United States incubators were made and used during the middle part of the last century (the first American patent was granted in 1847), but incubators were used in a small way, only, and the results were probably less satisfactory and the operations more costly than if the natural method of incubation had been used. There was something gained, however, in that there was enough interest in the matter to cause the building of better incubators so that by 1880 there were incubators in use in the United States which were practical and efficient enough for the times.

Presented at the Seventh World's Poultry Congress, Cleveland, Ohio, Aug. 3, 1939

Jacob Graves of Boston built incubators and sold them in the 1870's and we have a copy of an advertisement wherein he offers not only incubators, brooders, poultry feed and the like, but also chicks "two to four weeks old." This was in 1873, and Graves thus became, so far as we know, the first commercial hatcheryman in the United States, but this did not start the hatchery industry any more than the Egyptian hatcheries did or the couevers in France who sold chicks hatched under turkeys many years earlier.

The hatchery industry in the United States began when conditions within the country were such as to make this kind of business practical; when it fulfilled an economic need. The industry grew because of this need, and as it grew, it became more efficient in methods and technique, so that its growth was constantly accelerated.

Our period of industrial expansion built up our cities and urban population, creating more markets for poultry products. With this expansion came better and more economical means of transportation, and poultry became a more profitable crop, thus leading to specialization. This condition was responsible for improvement in incubators during the latter part of the century.

Since incubators of a fairly efficient type were available, those who began to specialize in poultry made use of them. It was natural for neighbors to bring eggs to be incubated and finally to buy chicks; in this way, the hatching industry began.

Specialization and concentration in poultry did not, of course, happen over night nor spontaneously over all the country. There were localities which, by reason of geographic features, near-by markets and other favorable factors became areas of concentration.

One of the spots where specialization and concentration were earliest developed was Petaluma, California. Climate, soil and natural features were favorable to poultry, and the near-by San Francisco metropolitan area furnished a ready market. In this locality there were probably 20 persons who hatched chicks for sale and incubated eggs for a fee by 1900. Some of them are still in the same business.

The first of these was C. Nisson who purchased his first incubator in 1880 and did considerable hatching for neighbors in those very early days.

### First Chicks Shipped in 1892

Other spots of concentration were in New Jersey where much of New York's fresh food was produced. It was natural for hatcheries to start there, and Joseph Wilson at Stockton, New Jersey, was the first of these, making his first shipment of chicks by express in 1892.

Other areas developed later, and hatcheries were established. Zeeland, Michigan; Tiffin, Ohio, and Vineland, New Jersey, were among the earliest and most important.

In those first years, a hatcheryman's customers were all near by, none farther away than a fairly easy drive by horse and wagon, so hatcheries had to be located in spots where poultry was concentrated. This also limited the number of hatcheries and their capacities.

The first hatcheryman to ship chicks regularly was Mr. Wilson, mentioned above. By 1900 he did considerable business in this way. Other hatcheries made some shipments prior to 1900, but these appear to be accidental rather than regular.

Mr. Wilson's shipments proved the feasibility of carrying chicks a considerable distance by express, thus serving a larger group of customers, and a hatchery, provided the egg supply was adequate, might be located anywhere near express facilities.

### Variety in Shipping Containers

The first chick shipments were made in homemade boxes, berry crates, chip baskets and improvised containers of various sizes and types. Neither the shippers nor carriers had much knowledge of the factors necessary to successful shipping, and both were anxious for the business and they learned.

A. E. Bourke was the first Petaluma hatcheryman to do a regular business in shipping chicks. This was about 1899 or 1900. Mr. Bourke also designed and built practical and efficient wooden boxes for this purpose.

In 1907 a middle western paper company, probably either the Sefton Manufacturing Company or the Hinde & Dauch Paper Company, made a chick box of corrugated paper board. This proved popular and its use has since become universal. Boxes of this type, made after the original pattern, were produced by E. F. Adams in Petaluma in 1908. Furnishing boxes to hatcheries is now quite a large industry in itself.

It would be interesting to know who — of all the hatcherymen — first had the courage to guarantee safe arrival of chicks when carried by express. We know that by 1912 it was fairly common practice, and we know also that it had a great effect on customer confidence and resulted in much heavier shipments. The shipping of chicks C.O.D. was another stimulus to shipping thought out by some enterprising business getter in the early days.

In 1918 baby chicks were admitted to the mails. This widened the market still farther because chicks by mail could reach places not served by the express companies. Then too, parcel post rates were cheaper than express rates in most cases. At the present time over 50 per cent of the chicks shipped in the United States are carried by mail.

### Brooding Inventions Helped

One of the earliest problems to be faced when farmers used incubator hatched chicks was that of brooding. Mr. Graves (mentioned earlier) sold artificial brooders as well as hens to mother chicks. Other incubator companies also sold brooders. Most of these early brooders were heated with kerosene lamps, but Nisson used terra cotta pipe sunk in a sand box and heated with a wood stove. There were also homemade affairs using hot water jugs or hot bricks which were just as efficient — in most cases — as the brooders offered for sale at the time.

The first radical changes in brooding came with the invention of the oil-burning canopy brooder in 1908, by H. Arenberg of Petaluma. A coal stove embodying the same idea came out about the same time. These brooder stoves could be placed in any type of building and permitted the brooding of larger units of chicks. They replaced, pretty generally, the older type of "mother board" brooders, and were a factor in the growth of commercial poultry farms.

Improvements in brooding since that time have been largely in management rather than in equipment. Present day brooders are operated by fuel oil, gas, electricity and coal and are more economical in operation and more easily controlled than those of early days.

The incubators used by our first

hatcheries were lamp-heated, hot-air type with capacities rarely over 600 eggs. Temperature was controlled by a thermostat acting on a valve in the top of the incubator which opened if the temperature went too high, thus allowing surplus heat to escape. Moisture was provided by sponges or pans placed in the incubator and in some cases the eggs were set in sand which could be moistened. The trays were usually of wire cloth or wooden slats, and the turning was done by hand. Some of the early incubators used circulating hot water, but in other respects were the same.

An important first improvement was in using the thermostat to control the flame instead of creating surplus heat and wasting it. Bourke (1900) and Lutz (1906) invented regulators for incubators burning gas. Studies in heat circulation made possible larger capacity incubators and these larger types became popular among hatcherymen. The greatest improvement, however, was in the operators themselves who learned how to operate these tricky old time incubators successfully.

Early attempts to use electricity as a heating element were unsuccessful, chiefly because of the type of resistance wire used. J. L. White of Petaluma is the first commercial hatchery operator we know of to hatch by electricity. He had his first successful hatch in 1914 after many failures and experiments. His was undoubtedly the first completely electrified hatchery. After a better kind of resistance wire was made available, the electrification of the old flat machines became a simple matter.

The "Blue Hen" and the "Wishbone" and other makes came out with mechanical turning devices — great labor savers which also promoted better hatches by reason of more frequent turning.

### Invention of Smith Incubator

In 1918 Dr. Smith of Ohio patented an incubator of the cabinet type with forced draft circulation of air and which would accommodate eggs in different stages of incubation.

This type of incubator had been built and used by Hastings as early as 1912, but evidently with no particular success, for it did not come into commercial use at the time.

Dr. Smith's incubator proved successful and his first one was sold in 1922.

The Buckeye Incubator Company, long a maker of old type incubators, was licensed under the Smith patents and produced an incubator embodying the same principles. Others of the same general type rapidly followed. Petersime was the first to use electricity for heating this general type of incubator (1922).

This invention came at the time when the poultry industry was enjoying its most prosperous years, and partly for this reason and because this type of incubator was easier and more economical to operate and occupied so little space in comparison with older types, it became very popular and resulted in large increases in hatchery capacity throughout the United States. This expansion was not only in increased capacities of then existing hatcheries, but in new hatcheries in every part of the United States.

While there can be no doubt that this type of incubator was largely responsible for the sudden and tremendous expansion of the hatchery industry between 1920 and 1930, it must be remembered that this was an era of vast commercial and industrial expansion, and the hatchery industry quite naturally followed the common trend.

### Poultry Improvement

It can not be seriously questioned that the growth and expansion of the hatchery industry is very largely responsible for systematic improvement in poultry throughout all the United States.

It is worthy of note that the time of the first practical use of incubators coincides with the time when Wyckoff first produced a flock of 200-egg White Leghorns. The expansion and growth of production breeding and commercial hatching, starting thus at about the same time, have since run parallel.

One of the strongest factors in the growth of the hatchery industry has been the fact that through hatcheries the farmer and commercial poultryman could obtain stock descended from that of well known breeders without the necessity of themselves going into the breeding business. The hatchery bought the seed stock and the chick customer received the benefits without trouble and for less cost than if he had gone to the breeder directly.

The net result of this connection between breeders and hatcheries has been to raise considerably the standard of farm kept fowls in the United States in both egg and meat production. This has not been a systematic program of all hatcheries, but as competition grew stronger, practically all hatcheries were obliged to follow some such course in order to prosper.

There were, of course, some hatcheries who might buy a few cockerels or hatching eggs from breeder A and advertise their stock as all breeder A strain for many years thereafter, even though most of their chicks bore no relationship to breeder A's or at least were so highly diluted as to render the relationship rather questionable in value.

It was to protect customers against this and other doubtful practices along the same general line that the state of Wisconsin and Sonoma County, California, organized the first official flock improvement programs for hatcheries in 1921. These programs were both voluntary, both under official supervision, both required certain breeding standards, both established grades, and both required advertising to be honest in regard to breeding.

The general idea behind this movement was that a customer might buy with confidence from a member of such a group, and that in this way general poultry improvement might be accelerated.

Within a few years, similar movements were organized in other states. By 1926 there were 17 states which had poultry improvement associations —although not always by that name, and in some states there were several such groups. All of them were based on official or semi-official supervision of breeding standards or of pullorum testing or both. Each of these independent groups had its own standards and terminology, although there was a general resemblance.

This multiplicity of standards and terminology, while not destroying the sales value of official supervision, did lead to confusion and nullified to a large extent the benefits expected.

### Uniform Plan

Dr. J. R. Mohler and Morley Jull of the U. S. Bureau of Animal Industry, James E. Rice of Cornell University and the late W. A. Lippincott, then at the University of California, were among the leaders who attempted for three years, beginning in 1925, to establish a uniform National Plan. There were some seven plans submitted, but on none could all states agree, principally because each group felt it had established a value to its own terminology and feared to lose it. The United States Bureau of Animal Industry did approve a uniform plan (1928), but it was not adopted as such nor on a national scale.

In 1934 a group of men representing hatcheries, breeders, poultry specialists and the United States Department of Agriculture met in Cleveland and drafted a uniform national plan for poultry improvement which was adopted and is now in operation in 44 states under the general supervision of the United States Department of Agriculture. Approximately 10 per cent of the hatcheries and 20 per cent of the hatchery capacity are under some phase of this plan.

### The I. B. C. A.

One of the early handicaps of the industry was the fact that each operator conducted his business without much knowledge of the others. Each had his own idea of methods, prices, policies, national trends, etc. There was nothing like standard practice even in the size or shape of chick boxes. This developed a group of independent thinking, self reliant operators, but resulted in some confusion among customers. It also retarded growth, for since there was no exchange of information each learned his lessons the hard way.

In 1916 a group of 12 hatcherymen and incubator manufacturers met in Cleveland and organized the International Baby Chick Association. The urge behind the first meeting was the activity of the Humane Society in interfering with baby chick shipments. This interference was prompted by the noblest of impulses, but with complete ignorance of baby chicks and their requirements.

The first president of the association was Herbert Knapp, and the first secretary was Hubert White.

This organization has grown and flourished and, together with the various affiliated state associations, now has in its membership over one-half of the hatching capacity in the United States. It is an important and integral part of the poultry industry of the United States. In 1923 another organization known as the American Chick Producers Association was formed. It combined with the International Baby Chick Association in 1929.

The continued growth and usefulness of this association is due, in no small measure, to the interest, energy and ability of Reese V. Hicks who has been executive secretary since 1925.

### Trade Practices and the Code

The rapid growth of the industry in capacity and members from 1920 to 1930 brought to light certain evils and weak spots. With the expansion, competition became stronger and, in many cases, unfair, uneconomic and unjustifiable. Untruthful and misleading advertising, meaningless guarantees, fraudulent and deceptive sales methods, and the dumping of surplus chicks at ruinous prices were among the most serious of these breaches. While the offenders were few, they were active and ruthless and did much harm to a growing industry.

The attention of the entire industry was drawn to this condition when a serious tragedy followed an attempt by the International Baby Chick Association to discipline one of its members in 1929.

The economic depression first felt by the industry in 1931 greatly aggravated the unhealthy situation, and in 1933 at the International Baby Chick Association convention at Grand Rapids, Michigan, the industry adopted a Fair Trade Practice agreement approved by the Federal Trade Commission. This agreement declared certain practices unfair and subject to injunctive action by the Fair Trade Commission.

### The Hatchery Code

At the same time and in the same place the industry formulated the first draft of a code of Fair Practices for the Commercial & Breeder Hatchery industry which after many revisions, public hearings etc. was approved by the A.A.A. and the N.R.A. and went into effect early in 1934.

In most cases the rules of the code were stricter than those of the Federal Trade agreement and there were additional rules designed to correct economic ills as well as ethical ones.

Compliance with code rules was obtained by means of co-ordinators and inspectors in the 11 districts set up in the United States and the organization was headed by a managing agent working with authorities of the A.A.A. and N.R.A. The first managing agent was John A. Hannah, followed by A. H. Demke, and the work of these men was responsible, in a large degree, for whatever benefits the industry derived from the code.

On the whole, the industry accepted the code favorably and voted to continue it at the International Baby Chick Association meeting in Cleveland, 1934. It is, of course, impossible to measure the value of the code or its effect on the industry, but it undoubtedly had a favorable influence, particularly in regard to the price situation which had previously been nothing short of chaotic, and also in the matter of misleading and deceptive advertising and sales methods.

All industry codes were voided by Supreme Court decision in 1935 and the Commercial & Breeder Hatchery Code with all others ceased to function; but the industry had by that time somewhat recovered from the most serious effects of the depression, some of the trade evils had been corrected or at least mitigated, and the industry was in better shape.

The code decision of the Supreme Court did not, of course, affect the Fair Trade Practice agreement with the Federal Trade Commission which remained in force. The International Baby Chick Association (Chicago, 1935) set up a Trade Practice Committee with an executive director (A. H. Demke) to maintain fair trade practices within the industry and to work with the Federal Trade Commission to that end.

The original trade practice agreement written in 1933 was re-written and revised in 1938 (St. Paul) and the revised agreement was approved by the Federal Trade Commission the same year. Gratifying results along trade practice lines have been obtained from this method of procedure and some flagrant abuses have been corrected.

### Trend Toward Specialization

In later years particularly, the industry has developed some specialized lines.

We find there are hatcheries dealing extensively in started chicks as Graves did some 66 years ago. The started chick development did not come until the battery brooder was a practical tool which was about 1926, although we did have battery brooders earlier. The first we know of was used as a sort of show-case by Geo. W. Cox of Kenton, Ohio in 1913.

We have hatcheries that hatch almost exclusively for the broiler plants. These hatcheries, for the most part, are located on the Eastern shore of the United States.

There are few exclusive duck hatcheries in the United States, and these are usually directly connected with or a part of commercial duck farms. There is, however, a large hatchery in Ohio (La Rue) specializing in ducklings.

One of the later developments and by far the most important in recent years is in turkey hatching.

It seems strange that the artificial hatching and rearing of turkeys did not develop along with chicks, but we find no reference to artificially hatched poults before 1910. The first advertisement offering baby poults appeared in 1912. There is little further reference to this phase of the industry until 1920 when a number of hatcheries offered poults. Beginning about 1923, turkey hatching experienced a quick and extensive growth, and the industry now produces approximately 30,000,000 poults annually.

As in chickens, the hatchery industry has greatly affected the number and quality of turkeys on farms and necessarily their use as food. Turkeys are now recognized as an all year round food rather than a delightful luxury reserved only for fall and winter holidays. The increase of turkeys on farms in the United States in the last 10 years amounts to about 55 per cent, and the turkey industry, particularly in the West and Southwest, is a specialized industry rather than a farm sideline.

### Chick Sexing

A practical, accurate method of distinguishing sex in pure bred chicks was developed by Japanese scientists and brought to the United States in 1933.

Prior to that time (with one exception) our poultrymen were unable to make such a selection. In certain hybrid crosses sex could be distinguished by down or shank color but this method, of course, had definite limitations.

The exception noted above was one individual, James K. Hirst, who successfully sexed pure bred chicks prior to 1920. He operated on the Pacific Coast and there is ample evidence that he was a skillful and accurate sexer. Whether he learned the art from the Chinese, who presumably had acquired it much earlier, or whether it was an independent discovery is not known. Like the Chinese, Mr. Hirst did not reveal his method nor his source of information.

The Japanese experts who came to the United States in 1933 taught Americans who taught others so that sexing chicks is now a definite part of hatchery routine in almost every part of the United States.

A competent sexer can handle from 700 to 1,000 chicks per hour and separate the sexes with an accuracy of from 95 to 98 per cent.

### Size of Hatchery Industry

Statistics published in 1935 (an Economic Survey of the Baby Chick Hatchery) show 11,405 hatcheries in the United States with total egg capacity of 276,287,000 eggs. This would indicate that over 500,000,000 chicks, poults and ducklings are produced annually by commercial hatcheries and breeders in the United States.

To this extent, then, has the hatching industry of the United States grown during the brief period of one man's life.

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# Production of Dried-Egg Products in 1938

*U. S. Department of Agriculture Release*

The production in 1938 of dried-egg products in the United States amounted to 6,001,590 pounds. This total is composed of 4,313,209 pounds of dried yolk, 1,509,647 pounds of dried albumen, and 178,734 pounds of dried whole egg.

This is the largest quantity of dried-egg products ever produced in the United States since the egg-drying industry began production on a commercial scale in 1927. Previously, 1934 was the peak year in production when domestic manufacturers produced about 4,300,000 pounds. In 1937, domestic manufacturers produced only 2,391,382 pounds.

The 1938 production of dried eggs is the equivalent of 18,619,000 dozen shell eggs. While this figure appears large, it represents only 0.6 per cent of the total number of eggs produced on farms in the United States in that year.

In past years, China has been our chief source of supply of dried-egg products, but because of unsettled conditions in that country, imports from China have fallen off to extremely low levels. These conditions have directly affected the area in which foreign and native-owned drying plants are concentrated. This sharp reduction in Chinese production because of this situation is shown by the fact that in 1937 the United States imported a total of 8,871,100 pounds of dried-egg products from China while only 1,260,680 pounds were imported in 1938. During the first five months of 1939 imports have been arriving at even a lower rate than in 1938.

In recent weeks the Chinese currency has been depreciating in value in relation to the dollar. If this situation continues it is possible that Chinese exports of dried-egg products will be further restricted.

## Estimated U. S. Production of Dried-Egg Products by Years

| | | | | | | Additional dried products which could be produced from surplus liquid eggs | |
|---|---|---|---|---|---|---|---|
| Year | Yolk | Albumen | Whole Egg | Total | Shell-egg equivalents | Yolk | Albumen |
| | Pounds | Pounds | Pounds | Pounds | 1,000 doz. | 1,000 lbs. | 1,000 lbs. |
| 1927 | 395,127 | —— | 160,900 | 556,027 | 2,148 | —— | 146 |
| 1928 | 214,683 | 2,500 | —— | 217,183 | 900 | —— | 77 |
| 1929 | 189,409 | 10,000 | 3,000 | 202,409 | 803 | —— | 60 |
| 1930 | 481,808 | —— | 7,257 | 489,065 | 2,041 | —— | 177 |
| 1931 | 478,456 | 1,770 | 72,517 | 552,743 | 2,227 | —— | 174 |
| 1932 | 1,868,607 | 401,738 | 14,638 | 2,284,983 | 7,874 | —— | 286 |
| 1933 | 2,170,598 | 1,486,715 | 138,301 | 3,795,614 | 17,342 | 1,867 | —— |
| 1934 | 2,668,237 | 1,428,075 | 203,409 | 4,299,721 | 16,874 | 1,210 | —— |
| 1935 | 2,805,502 | 133,357 | 61,450 | 3,000,309 | 11,943 | —— | 900 |
| 1936 | 1,092,984 | 267,278 | 125,460 | 1,485,722 | 4,964 | —— | 135 |
| 1937 | 1,776,393 | 540,589 | 74,400 | 2,391,382 | 7,671 | —— | 113 |
| 1938 | 4,313,209 | 1,509,647 | 178,734 | 6,001,590 | 18,619 | —— | 78 |

# A Feeding Schedule for Year 'Round Egg Production

By Guy A. Leader
York, Pennsylvania

*Condensed from a Talk*

THE first step in achieving year 'round egg production is to have a laying flock that has been bred to produce eggs. That is the starting point. The best feed and the best of management won't result in steady year 'round egg production if the birds have not been bred to do that job.

Twenty-eight years ago when I went into the chicken business, it was very difficult to find laying stock from flocks bred for production. Today, however, there are many reputable breeders of poultry all over the country who have developed flocks in which the desirable trait of laying the year 'round has been fixed to a very large degree when the birds are given a balanced ration and managed with reasonable care.

In addition, these breeders have improved the size, shell color, and shell texture of the eggs laid, and of equal, or even greater importance to the egg farmers is the definite progress in breeding for greater vigor and longer life in the layer herself.

In my early days of egg laying competition, records from 2200 to 2400 eggs could easily win the contests of that period. If we were to examine the records of the birds in the winning pens of today and compare them with the records of the contest winning pens of a decade or so ago, I am certain that today's hens are outlaying their sisters of yesteryear by 50 to 75 eggs per hen.

A part of this difference in production is accounted for by increased knowledge of feeding, but I am convinced that fully as large a part of the increased production can be attributed to better breeding in the hens themselves.

All these advances in breeding have been made possible by the honest and careful trapnest work done by skillful breeders. These men, by selecting birds that had the desired characteristics and by discarding others that lacked these qualities and, further, by testing under the trapnest the offspring of these carefully selected breeders, have been able to establish families of poultry that combine those qualities that make year 'round egg production possible.

## Right Feed is Second Step

The second step in achieving the goal of getting eggs throughout the entire year is to have the right feed.

As I see it, there are two things that a feed for layers should do. One is that it should supply the hen with everything that goes into the making of an egg. The other is that it should maintain the hen and help to keep her in good health.

Many years ago, long before our present knowledge of feedstuffs and vitamin carriers had been acquired, O. W. Mapes of New York State, who was known throughout the East as "Mapes the hen man," secured an egg record of 240 eggs with a single hen in a year by giving this hen special feed and care.

A hen that laid 240 eggs in a year was quite a thing in those days, so Mr. Mapes was frequently asked to address meetings of farmers and tell them of his accomplishments. One question that was almost invariably asked of Mr. Mapes was what did he feed this hen and how? Mr. Mapes would then relate in some detail just what and how he fed his famous hen; then in conclusion, he would add, "to make sure that she received everything needed to make an egg, in addition, I fed my hen one fresh egg daily."

We know, of course, that a commercial poultryman following this system of feeding would not have any eggs to sell, but on the contrary, he would have to buy eggs. But Mr. Mapes disclosed the real secret of feeding for eggs. The hen must receive in her ration everything she needs to make an egg.

## Ration Must be Complete

Making bricks without straw has ever been regarded a difficult task. It is even more difficult for a hen to produce eggs when fed a ration deficient in a single essential requirement. When the ration is deficient in calcium and carotene, we know that a hen will draw upon her own bones to find the calcium necessary to produce eggs upon the pigment of her body to supply that ingredient which gives the egg yolk its color. It is readily seen, however, that the number of eggs which can be produced under such conditions is definitely limited.

That food plays a most important part in the maintenance of health in both man and animals is today a fact recognized by all students of nutrition. A most striking example of the effect of foods on health and disease was related by Dr. Victor Heiser in an address made at the annual meeting of the American Association for Advancement of Science held at Milwaukee in June of this year.

Dr. Heiser quoted the now classic experiment conducted by Sir Robert McCarrison, who, established in India (in the early twenties) a thoroughly healthy rat colony. The (1,189) stock rats were fed a diet similar to that eaten by certain peoples of Northern India, among whom are some of the finest physical specimens of mankind. The diet consisted of whole-wheat flour, unleavened bread lightly smeared with fresh butter, sprouted Bengal grams (legume), fresh raw carrots and cabbage, unboiled whole milk, a small ration of raw meat with bones once a week. During two and a quarter years (about 70 years for human beings) there was no illness among the rats, no deaths from natural causes occurred in the adult stock, and there was no infant mortality.

Another group of 2,243 rats was given food eaten by the natives of southern India, who are puny and disease-ridden. Their menu, cereal grains and vegetable fats, and no milk, butter or fresh vegetables. Not only were these rats stricken with well-known deficiency diseases such as pernicious anemia (lack of iron), goiter (lack of iodine), beriberi (lack of vitamin B), but they also developed pneumonia, pleurisy, deafness, adenoids, eye ulcers, kidney stones, gastric ulcers, heart disease and skin infections.

The ration fed our layers must be complete not only with respect to the nutrients required to produce eggs, but it must also contain those feed-

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stuffs that are recognized by science for their health promoting qualities.

I should like, however, to make several definite suggestions with reference to some of the ingredients which I believe must be included in the ration to be fed for year 'round egg production and for maintenance of the health of the flock. These suggestions are based on my personal observations over a period of more than 28 years. In that time, I have seen many changes occur in the rations which are fed to laying flocks.

### Changes in Ingredients

Some very pronounced changes have taken place in the composition of some of the ingredients themselves. One of the most reliable mash formulas of years ago was the "big five." It did a real good job of egg production. The "big five" egg mash was made up of 100 pounds of corn meal, 100 pounds of wheat bran, 100 pounds wheat middlings, 100 pounds of ground oats and 100 pounds of meat scraps.

After a time, this mash didn't seem to produce the usual results. We didn't know why. We learned afterwards that the reason for the failure of the "big five" mash was that a change had taken place in the composition of the meat scraps. Meat scraps purchased 20 or more years ago contained a good percentage of the pork livers from slaughter houses. Then came the discovery of the value of livers for the treatment and prevention of anemia in humans, with the result that pork livers disappeared from commercial meat meals.

Scientists later explained that the pork liver carried vitamin G, which is indispensable for satisfactory growth and health. The addition of milk to the ration replaced pork liver in a large degree as a source of this valuable food factor.

We are all acquainted with the importance of supplying vitamin D to the poultry ration through the addition of cod liver oil or other fish oil concentrates. While a number of vitamins are important in poultry feeding, this vitamin probably is the most important. Without it, it would be impossible to maintain satisfactory production during the winter months when the layers are confined the greater part of the time.

### Protein from Several Sources

For a laying mash, I prefer one that has a relatively high protein content which is well-balanced. By that I mean, the protein should come from a variety of sources. Meat scraps, good fish meal and dried milk should be the principal sources of protein. I prefer to have not less than 100 pounds of milk to the ton. Some soybean meal and some gluten meal are helpful, too—and then the other grain meals made from corn, oats, and barley, and some wheat bran and middlings must be added also.

A most important ingredient that cannot be overlooked is alfalfa leaf meal. Here is a most valuable ingredient. I believe that the smallest quantity to be used should be 100 pounds to the ton. When a laying flock is confined and has no succulent green feed of any kind, it is a good practice to increase this amount to 120 pounds or even 150 pounds per ton. Keep in mind, however, that the quality of the alfalfa leaf meal fed is fully as important as the quantity.

### Provide Variety of Grains

When it comes to the grain feed, I believe that variety is very important. There should be corn, wheat, oats and barley in the grain mixture. In feeding a mixture of grains, it is well to watch the appetites of the birds to see just which of the grains they prefer. This will help to get the proper balance.

There are a lot of poultry raisers who feed one grain entirely, perhaps all corn or all wheat. This practice is determined largely by the price of grain rather than by the needs of the bird. Such a grain ration consisting of only one variety will fail to stimulate the appetite and will, therefore, fail in producing a year 'round egg yield.

### Third Step is Management

Having determined what feedstuffs, grains and recognized supplements, are required for health and egg production, it is then necessary to know how to feed them in order to get the best results. This is called management. It is the third essential step in securing year around egg production.

I am reminded in this connection of a story that is told of the great painter, Whisler. It seems that on one occasion a woman who visited his studio while Whisler was at work annoyed him by bursting out with expressions like, "How gorgeous," "What beautiful colors," "How wonderful," and so on. Whisler paid no attention to her outburst. Finally, unable to contain herself any longer, she blurted out. "Oh, Mr. Whisler, how do you mix such gorgeous colors?" Mr. Whisler eyed her rather coldly and then replied, "with brains, madam, with brains."—

Whisler had no pigments other than those available to all artists, but the results he secured were superior. Whisler's skill made the difference.

This same difference in the results can be observed among flock owners in different flocks fed on exactly the same rations. One flock owner, however, gets very excellent production, while the other flock owner finds it almost impossible to maintain any kind of production that is steady. There is no substitute for brains, which means good judgment and proper application, in feeding for eggs and maintaining laying flocks in top physical condition while getting results. I suppose if we used our heads in this chicken business as we should, we wouldn't make as many mistakes as we do.

I am convinced, however, that the best results can be obtained only when the feeder exercises his intelligence in sensing the needs of the birds under his care.

I want to repeat that I believe in feeding a dry mash that is relatively high in protein and that the protein in its makeup shall be derived largely from animal sources, while milk in its various dry forms should also comprise a generous part of the protein constituents of the mash.

Feeding a high protein mash permits the use of a larger proportion of grain in the ration. This results not only in economy, but it has a beneficial effect also on the health of the intestinal tract of the fowl. The Creator gave the hen a gizzard. Why not give her an opportunity to use it as nature intended by feeding grain? The hen needs a hard, sharp grit, however, to assist her gizzard in its work of grinding.

### Flexibility Important

The flexibility of the feeding schedule which is possible through the use of a high protein mash in combination with grains is especially important. This is one of the reasons why I do not favor an all-mash ration. It is difficult to adapt to the extremes of weather found in summer and winter when the requirements of the birds differ.

More grain is fed in cold weather, and less in warm weather because the need for heat producing carbohydrates found in the grains is less during the warm months of the year. When a combination of mash and grains is used, it can be fed in varying proportions to meet the needs of the flock as the weather changes with the seasons.

### Grain as Control of Lay

I believe in using grain as a control of the lay, varying the amount according to egg production and the appetites of the birds. If the egg production is up to 75 or 80 per cent, then our men are instructed to give the birds all the grain they will take in the morning feed and at night also. If the production is down around 50 per cent, then just enough grain is fed to make the birds sing and be happy to see the attendant.

The first grain feeding for the day occurs at 7 a.m., when the attendant makes the rounds for the first time. He may feed as little as one pint of grain to 100 birds or it may run as high as two and three quarts for that number of birds, depending upon their rate of production. At 9 a.m., when gathering eggs, the attendant will throw a few hands of grain in the litter again, just enough to keep the birds active. This is done again between 1 and 2 o'clock when eggs are being gathered again. All of the grain is fed in the litter except at night when it is fed in part in the litter and the remainder in low troughs. I believe that the exercise which the birds get in scratching for the grain in the litter helps to keep them in good physical condition.

For the evening feeding of grain, the birds are given all that they will consume. The attendant makes the rounds the second time. If there is some grain still left in the litter, the birds in that pen will get no grain in the morning. On the other hand, if the birds show that they could eat more grain, they are given more immediately.

I suppose a fellow could easily overdo this grain feeding thing. Our men are told not to feed any grain if there is any left in the litter. They are to feed only when the previous feeding of grain has been cleaned up. We want to keep the birds on their toes.

Every feeder should have some practices designed to keep an edge on the appetites of the birds. This seems necessary in order to keep them in good flesh. If a hen is to continue at a good rate of egg production over a long period, she cannot lose weight. In fact, a pullet flock, if correctly fed and managed, will continue to gain in weight for many months after coming into production.

If the feeder fails to get enough feed into the birds so as to maintain body weight, the rate of production will diminish rapidly and the flock will go into a premature molt. I suppose that most of us know that this premature molt usually occurs just when egg prices are pretty good and we are anxious to get all the production we can. A premature molt simply wrecks the prospects of maintaining good year 'round production.

### Condensed Milk for Appetizer

For an appetizer, I know of nothing more stimulating than the feeding of condensed milk in its several forms. We feed it simply by smearing it on the sidewalls of the pen with a broad paddle. The attendant does this the first thing in the morning, that is, when he makes his rounds at 7 a.m. This practice is effective in both hot weather and cold weather. The skillful feeder always has some card of this nature up his sleeve.

The best method known to me for maintaining a heavy laying flock in good flesh is the use of a wet mash made up largely of cornmeal, oatmeal, and condensed milk with the addition of a little extra cod liver oil. A little green sprouted grain such as oats or barley, or chopped vegetables such as cabbage, carrots, turnips or potatoes added to the wet mash makes it better relished by the hens. Such wet mash is eaten in larger quantities by the hens, and that is what we want to accomplish.

Only as much wet mash as the birds will clean up in 15 to 20 minutes is fed. This feeding is done at noon.

### Lights Stimulate Laying

Still another means of increasing feed consumption in the laying flock is the lengthening of the day through the use of artificial lights. It was believed at first that light had no effect other than this, but later investigation has indicated that light stimulates the egg organs as well.

All too frequently, lights have been abused to the detriment of the flock and sometimes with almost total loss of the egg yield. Lights should be used on the laying flock much as a good jockey or teamster uses his whip. Good horsemen hold a whip in reserve, using it only when good judgment indicates its need. Many pullet flocks are forced to lay beyond their physical capacity. This is particularly true of early hatched flocks which come into production in July, August and early September, when they are put under lights too soon after housing. The early breakdown that follows is often not understood by the caretaker.

Such pullet flocks should not be subjected to the use of lights until there is an indication that production in falling to 50 per cent or less. This drop in production in early hatched flocks should not occur before late October. In fact, I have found that some of our early pullets required no light at all to help maintain better than 50 per cent production up until late November when we usually experience our first cold weather.

While a 13-hour day might be entirely satisfactory, I believe in maintaining a 12-hour day. Our lights are turned on in the winter months to maintain a 12-hour day from 6 a.m., to 6 p.m. Flocks that are properly bred should not have to go over the 12-hour day.

### Keeping Feed Costs Down

All of us are interested in keeping our feed bills down. They mount up rapidly enough. We want to save wherever we can. Poultrymen sometimes think that economy lies in feeding the cheapest available ingredients. Economy does not consist in the cost of a particular ingredient, nor, in the comparative cheapness of the ration fed. The true cost of a ration can be determined only by taking into consideration the actual cost of producing a dozen eggs when that ration is fed to the flock during the entire year.

A ration cheap in the popular sense may produce eggs for a part of the year, but the period of production will be short and will be followed by a breakdown. The successful feeder considers results and profits on a yearly basis rather than on the profits that can be squeezed out of his flock in a few months of feeding a cheap but deficient ration.

The feeder who feeds such a ration may find that his flock may produce well for a period of some months, but sooner or later the store of vitamins built up within the bodies of his layers during the growing period or during a period of rest will be exhausted. The resulting physical breakdown frequently means more than just a mere cessation of egg production. It often requires that the bird be sold as a cull and this ends her usefulness as a producer of eggs. Too many layers are going out by this route. The ration fed should help to hold down losses of this type to the smallest possible number of layers.

### Greater Hazards in Confinement

In this day when many laying flocks are maintained in confinement during the entire year, the effects of an inadequate diet develop in these flocks much earlier than in those flocks that have access to a good green pasture and to the soil. These effects are indicated by lessened egg production and lowered physical condition.

Laying flocks kept in absolute confinement are prevented from making up any deficiency in the ration which can be supplied by the green foods that abound on farm ranges during more than half of the year and from eating the soil itself. A distinct craving for soil seems inherent in poultry. It is apparent when it is seen with what relish hens kept in confinement eat it when given an opportunity to satisfy this craving in the out of doors.

I believe in handling our birds under as near natural conditions as is possible and still obtain good egg production. My birds are allowed to run out of doors almost every day of the year, except when the weather is very bad. The exits for the birds are open between 11 and 12 o'clock, except in the spring months when they are permitted to be out of doors from noon until night.

It is my good fortune to have a blue grass range which stays green much of the year and which recovers very rapidly in the spring in case there should have been any killing from frost.

### Cannibalism Prevention

Vices that are quite prevalent in flocks kept in confinement are feather eating and cannibalism. Flocks that have access to a range or yard with pasture almost never form these vicious habits. In some instances, lack of healthful fibre in the ration may be at the root of the trouble. Feeding heavy oats by keeping it in open hoppers before the hens at all times will supply this lack. Smearing condensed milk is an aid in preventing picking. Giving the flocks greens such as short cut lawn grass, alfalfa, young corn stalks, or the vegetables mentioned in connection with wet mash feeding will do much to overcome the difficulty in question. All these feeds seem to satisfy a craving for something missing in our regular laying rations.

The knowledge of what to feed and how to feed it must come from the observations of methods employed by successful flock owners and from personal experience in handling laying flocks. There can be no substitute for the practical experience acquired in doing the actual job of feeding and managing the layers yourself.

Summing it up, I would say that year round egg production results from a combination of a good hen man and a good flock. A good poultryman will not tolerate a poor flock. He will feed a well-balanced ration because only by so doing can he secure eggs the year 'round, maintain the health of the flock, and show a profit.

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# Uncle Sam's Salesmanship

*Editorial from Feathered World*

WHAT can America teach us about poultry keeping? The United States is a vast country which consumes twice as many eggs per man as Britain and twelve times as many table birds. It is a country which devotes millions of dollars annually to poultry research, and is years ahead of us in the science of air conditioning, cold storage and refrigeration.

Yet, in spite of these advantages and resources, America lacks two small factors which we are fortunate to possess in the old country. One is grass and the other is a mild rearing season.

For this reason, we can confidently claim to rear as good a chicken and breed a layer which for production and egg size is equal to anything oversea. But it is not good breeding a good bird if you cannot sell it. And the art of salesmanship is the essential lesson which America teaches us.

Poultry disease is an even greater problem in America than it is with us. It is well recognized, however, and is being tackled on commonsense lines. Instead of abandoning the usual system adopted in the States of dry-mash feeding, intensive rearing, high-protein rations and large units—enforced by a combination of extreme climate and high labor charges—disease is being fought from the breeding end.

Some of the most useful research work, from an immediately practical point of view, is now being done with the breeding of disease-proof strains. Breeding stock is selected on the grounds of immunity from disease as a family. Brilliant individuals are ignored: instead, groups of sisters which show no losses go into the breeding pens.

America has little to teach us in regard to poultry equipment. Low temperatures in winter demand a well-insulated, intensive laying house, which is not required in this country.

Laying batteries are not extensively used owing to the cheapness of land, and to the fact that poultry keepers in the States are general farmers.

Large unit intensive brooders are out of fashion here; and high-protein rations are uneconomic with the greensward we possess.

The cheap wire-sided range shelter might well be more widely adopted, as well as wire-mesh hurdles and preservative paint, a common dressing for American poultry houses.

One fact that is significant, however, is that the American farmer can actually make money—or at any rate not lose any—on the ubiquitous White Leghorn cockerel. This is because of the development of the broiler trade by skilled marketing and scientific preparation.

A broiler is any cockerel of the weight of about 2 pounds. It need not be specially fattened; its breast shape is immaterial. It can thus be reared in large numbers intensively on the floor.

Its popularity, however, depends on cold storage, or, to be exact, quick freezing. This permits a cockerel which has been reared in the glut period in the spring to be held off the market until it fetches an economic price in the winter. Quick freezing enables a perishable article to be always available to the consumer at a standard price.

Concurrently with the development

Feathered World Ltd., Long Acre, London, England, W. C. 2
(Feathered World, August 18, 1939)

in refrigeration comes the ready-to-cook chicken. The bird is drawn and dressed ready for the oven or the frying-pan, neatly wrapped in Cellophane, and in spite of the increased price the American housewife is taking to it in ever-increasing numbers.

It may be a long time before eviscerated quick-frozen chickens are sold over the counter in this country in the same reliable way as a pound of sausages. Yet we have in this country an American packing plant which can put it across, and with the passing of the Poultry Bill we can look forward to better grading and more equable prices.

The position which the poultry industry holds in America inspires confidence in the future development of our own. We can produce the goods; it only remains for us to stimulate an insatiable appetite by modern marketing.

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## *Many Poor Cooks of Chicken*

Anyone who travels extensively cannot help but be impressed with the scarcity of chefs who know how to prepare and serve such a well known American dish as fried chicken, even on the best dining cars, or in the leading hotels.

There is no excuse for a pound-and-a-half or two-pound broiler being tough, but the chances are about 10 to 1 that on an order for half-a-chicken, either broiled or fried, the utmost ingenuity will be required to separate the meat from the bone due to the simple elemental fact that the chicken is "not done," in other words that it has been seared on the outside, but not properly cooked through and through. A few hundred such experiences tend to dull the appetite of even the ardent "Fried Chicken Fan."

And on an order for roast chicken, one is lucky if he does not find splintered bone mixed in with his white meat where the careless chef has prepared his servings with the cleaver instead of disjointing the bird in the natural way.

It is also rather notable that no matter how cheap chickens may be on the market, most eating places seem to feel that chicken can be served only on the "Dollar Dinner," while roast beef, lamb chops, roast veal, etc. may be purchased for 60 to 75 cents for the entire meal. Truly there is a vast field for improving the consumption of poultry in public eating places, if the proper cooperation could be gotten from the people who prepare and serve the chicken dinners.

—Smith's Chickagrams, July, 1939.

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❝ A HEN belonging to Ivan Martin, Monrovia, Calif., laid an egg each morning at 8:30 o'clock, for 11 consecutive days, in a chair in Martin's breakfast nook, according to a news account.

❝ IT USED to be the custom following cock fights to mix drinks which contained as many ingredients as the victorious cock had tail feathers. This is one version of the origin of "cocktail."

—Carl H. Schroeder, Poultry Tribune, July, 1939.

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# Breeding White Leghorns for Fifty Years

By Tom Barron

Catforth, Preston, England

*Condensed from a Talk*

IT is now 50 years since I started keeping poultry, and during most of that time I have been breeding White Leghorns. You may expect to hear from me some mysterious way of breeding, but if you do, you are going to be very greatly disappointed. When I first started, the White Leghorn was almost solely being bred for show purposes; little or nothing was being done to improve the breed from a production point of view.

### Bred for High Egg Production

I spent many nights and days in search of the right type of birds with which to start my venture in breeding for usefulness and egg production. I visited many farms before the right foundation stock was got together. I had to keep away as much as possible from English exhibition birds that were stilty and long on legs — too large birds for the breed and altogether wrong for the object I had in view—high egg production. At first, no trapnests were available, so I had to rely on handling and observation. I was very particular about the texture of comb, wattles, lobes, and head points, and especially, good eyes. The color must be bay or red, and no sign of split pupils; I must have a large, clear-cut pupil and bold eye—an alert-looking bird, not too long on legs, but having plenty of pigment.

A friend and I evolved a trapnest, which, although crude, did its work accurately. This had the most far-reaching effects. What had been up to this time mainly guesswork of each bird's production, by means of the trapnest became a certainty.

### Entered First Laying Test in 1906

From then on, my interest never waned. I became keener than ever, spending all my time and savings on furthering my ambition. I entered one of the first laying contests in England, 1906-7, and my birds were so successful that I decided to enter in The North American Test. That was the commencement of my real success with White Leghorns. The birds I sent there and later to laying contests at Thorndale, Delaware, Storrs, Missouri, etc., were so much appreciated by poultry men and women in the States that my Leghorns became famous. I sent to other contests in South Africa and Canada, and my birds did not disgrace themselves. The result has been that I have exported White Leghorns to almost every part of the world, by sea and air. One large consignment to the Russian Government was for 500 six-months old pullets, and 4,000 day-old chicks were dispatched to the same government by air, a journey of 60 hours, showing what day-old chicks can endure.

My method of breeding is to select

Presented at the Seventh World's Poultry Congress, Cleveland, Ohio, August 1, 1939 the very best from a production and, at the same time, from a health point of view. I run different families made up chiefly from an eighth to a quarter related blood and outcross the progeny of this inbreeding, with other families of similar inbred stock. I find inbred stock, providing it is not too near, mated to unrelated, inbred stock, gives me very good results. Occasionally I buy a few good pullets, test them, and if satisfactory from every point of view, work in some of their blood. This is, I think, the safest way of introducing a new strain.

The birds I use for my own breeding are trapnested for one year only. At one time, I recorded the birds for two and three years without obtaining any better results. I find one full year sufficient, providing the selection of breeders is made from their all-round performance and not for number of eggs only. My standard of selection from all angles is very severe. In the first place, my pullets for recording are selected very carefully; they must be good, large birds, with plenty of capacity. Early in their trapping life, I make sure that their eggs are of good size, pure white and smooth in texture. Occasionally their eggs are broken to examine for firm albumen and color of yolk.

### Good Health is Required

Texture of comb, wattles and lobes is taken into consideration, as is also their general type. Throughout this first year of their recording, any illnesses or faults are noted and are taken into consideration at the end of the year. In my opinion, for special breeding stock the standard cannot be too high. I wish to stress the importance of breeding for health.

Just as much care is taken in the selection of the male bird. As I have often said, the male is more than half the pen. He must be bred from a dam which is as near perfect as possible. I am most particular as regards body size. I like a male that feels heavy when handling: one that has good girth measurement, square body, well proportioned, standing firmly on his legs, which are set wide apart and not too long. Weight of cockerels is 6½ pounds upwards and of pullets, 5 to 6 pounds. I like a cockerel that stands upright, has a manly character, is rather vicious, and tends his mates. Over all, any birds with any serious defects are discarded and not bred from. I dub all my breeding cockerels, that is, cut off their comb and wattles. I find by doing this that we get better fertility, especially in our cold, wet climate. I can thoroughly recommend dubbing to you.

Our recording and pedigreeing is done by the aid of toe punches, cuts, wingbands, and numbered legbands. A record is kept of each bird, and after all this trouble only about one-quarter of the pullets originally put on the trapnests come up to our standard as breeders.

### Raises Four Different Breeds

I should like to mention that I keep, on my farm at Catforth, four different breeds, the White Leghorn, White Wyandotte, Rhode Island Red, and Light Sussex. The Rhode Island Red, at the moment, is most popular in England.

We in England use the White Leghorn very extensively for first crossing our various other breeds. Such first crosses as the White Leghorn—Rhode Island Red, Leghorn—White Wyandotte are made. These crosses are very popular with the English commercial egg farmer. The pullets are excellent producers of slightly brown-tinted large eggs; their laying

and livability are increased by crossing, and they stand up to commercial egg production better than the pure breeds. Our markets in England like a brown or tinted egg in preference to a white one. Our hatcheries in England do a great business in these cross-breeds and I can safely say they constitute three-quarters of their total sales. The hatchery business in England is now almost as well established as in the United States, and is of first importance to our poultry industry.

### Rotates the Ranges

I have four Petersime incubators of 16,000 egg capacity each. All eggs hatched are from my own stock and farm, which carries over 8,000 layers. I have nearly 400 acres of the best productive land in England. As far as is practical, my birds are run on free range and a system of rotation is used to insure the land from becoming fowl-sick.

My day-old chicks are reared in units of 100 and are running outside on grass runs within a week. These runs are grazed by young cattle. The hovers are heated by electricity, and at three weeks old the hovers are placed on fine mesh wire netting floors raised from the ground to prevent the young birds from sweating under the hovers. When the chicks are eight to ten weeks old, they are removed to other houses on wheels on free range. These are moved at regular intervals on to new land. They stay here until they are near lay and are then taken to their laying houses. At each time of moving, we cull all stock and any birds we do not like are removed.

## Roosts for Turkeys

Did you ever watch a turkey roost in a tree? He never gets on a wide limb, but picks a branch a couple of inches in diameter, or less; a branch that he can take hold of.

With a 2 by 4, flat side up, the turkeys have nothing to take hold of. Their feet are flat on the plank, and to maintain their position, particularly where the wind is blowing, they let the whole body weight down on the breast. The legs bear no part of it, or at least no appreciable part. Turn the 2 by 4 up the other way—narrow side up — and the bird has something to hold on to. His toes will reach across the roost, his legs carry some of the body weight; it isn't just clamped down there so the weight itself will keep the bird from slipping off.

Last summer we had our 2 by 4 roosts flat. Our heavy toms began getting abcesses and corns an inch or so back of the front point of the keel. Some slight traces of roost dent also developed. We figured things out as outlined above; changed the 2 by 4's to narrow side up. Our corns and abcesses disappeared and in the younger flock there was not a trace of roost dent or a corn during the balance of the season.

—Norbest Turkey News, July, 1939.

¶ SOME Chinese tribes prepare chickens for the table by beating them to a pulp, bones, gizzard, intestines and all. Only the bladder is removed.

—Carl H. Schroeder, Poultry Tribune, July, 1939.

# POULTRY RESEARCH

## Factors Affecting Fertility

Outside temperature and age of the birds are among the factors affecting fertility, but inheritance seems to have no influence on fertility, according to F. A. Hays and Ruby Sanborn, Massachusetts Agricultural Experiment Station. The results of a 15-year study of fertility, involving 2,101 Rhode Island Red females and 305 males, are reported in Massachusetts Bulletin No. 359.

When the average temperature was below 32 degrees Fahrenheit during the period in which hatching eggs were produced, fertility ranged between 54 and 77 per cent. When the temperature rose to above freezing, fertility ranged from 70 to 85 per cent. Cold weather causes birds to become inactive and spend considerable time on the roosts. In the case of males with frostbitten combs or wattles, mating is very infrequent.

Males had their maximum fertility as cockerels and showed a marked decline in fertility each succeeding year. Females, on the other hand, had their best fertility as yearlings and showed a less pronounced decline in succeeding years.

Most cases of infertility were caused by males, for when males were changed, 93 per cent of the infertile matings became fertile.

Although selection for high hatchability and for large families was practiced in these studies, there was no increase in the fertility as the work progressed, leading the investigators to conclude that fertility was not governed by inheritance. The percentage of infertile matings did not change in the 15-year period, although there were wide fluctuations from year to year.

## Relation of Body Weight at Housing to Mortality

Mortality in the laying houses decreased as the weight of pullets at housing time increased. This observation was made by F. A. Hays, Massachusetts Agricultural Experiment Station, and reported in Massachusetts Experiment Station Bulletin No. 364, after a study of body weights of 2,283 Rhode Island Red pullets.

Pullets gaining 1½ pounds from housing time to March 1 had the lowest mortality during the remainder of the year, indicating that removal of lightweight birds about March 1 offers an effective way of cutting subsequent laying house losses.

From the standpoint of the number of eggs and the size of eggs produced, Hays found that an increase in body weight of about 1½ pounds during the first laying year was most desirable in this flock of Rhode Island Reds. Birds losing weight or showing no change in body weight during their first laying year gave unsatisfactory egg records.

## Factors Affecting Egg Production in Turkeys

Sexual maturity (date of first egg) was found to be the most important factor affecting turkey egg production from the beginning of egg production to the end of April, in work done by V. S. Asmundson at the California

Experiment Station, and reported in Journal of Agricultural Research (Vol. 58, No. 10). Length of pauses, date of last egg, and net rate of production were other factors in the order of their importance, during this first part of the laying year.

Egg production in May and June was influenced most by length of pauses and date of last egg. Persistency had by far the greatest influence on production after June. Date of first egg and net spring rate had little or no effect on egg production during this period.

Factors of greatest practical importance in selecting breeders for improved egg production during the breeding season are, in the order of their importance, sexual maturity (date of first egg), length and number of all broody and non-broody pauses, and net spring rate.

## Artificial Insemination of Chickens and Turkeys

The technique of artificial insemination of chickens and turkeys is described and illustrated by William H. Burrows and Joseph P. Quinn, Bureau of Animal Industry, in U. S. Department of Agriculture Circular No. 525.

This technique is valuable, according to Burrows and Quinn, in providing a means of obtaining fertile eggs from hens in laying batteries, in extending the usefulness of valuable males and females, and in effecting fertilization when birds do not, or cannot, mate naturally.

## Relation of Interior Egg Quality to Hatchability

Since eggs from White Leghorn pullets having an extremely high or low albumen index rating hatched equally well in experiments carried on by L. A. Wilhelm at the Washington Agricultural Experiment Station, and recorded in proceedings of the Seventh World's Poultry Congress, Wilhelm concluded that apparently hatchability alone is not a satisfactory basis for the elimination of those undesirable hens having poor egg quality. Albumen index and albumen height were found to be closely associated with one another, but neither was found to be associated with hatchability. Both egg weight and shell thickness were closely related to percentage of hatch, but there was no association between shell thickness and 21-day mortality.

## Effect of Temperature Shock on Developing Chick Embryos

Exposure to any extreme temperature of short duration in the incubator will result in delay in embryo growth and consequently a delay in hatching. Moreover, any accidental overheating in the early stages of incubation or excessive cooling in the latter stages of incubation will result in heavy embryonic mortality. These conclusions by Alexis L. Romanoff of Cornell University are reported in proceedings of the Seventh World's Poultry Congress.

The effect of temperature was found to be greatest in the early stages of incubation, with the embryo growth being speeded up by high temperature (105.8 degrees Fahrenheit) and slowed down by low temperature (84.2 degrees Fahrenheit), in Romanoff's experiments. As the incubation period advanced, temperature effects were lessened, and from about the tenth day both high and low temperatures slightly delayed embryo development. Growth of the embryo during all post-exposure periods of extreme temperature changes was suppressed, even after temporary acceleration by high temperature, causing a delay in time of hatching.

## Blackflies Carry Protozoan Disease to Turkeys

A blood protozoan of turkeys, transmitted by the blackfly, has caused heavy losses among young poults in some areas of the Central East. Johnson and co-workers of the Virginia Experiment Station were the first to study and report this disease (Am. Jl. of Hygiene, Vol. 27, p. 649). The causative agent is a protozoan, that is, a one cell organism representing the smallest and, in more than one sense, the lowest form of animal life.

The disease occurred chiefly among poults less than 12 weeks of age. The symptoms, usually lasting but a few days, were primarily lack of appetite, unsteady gait, droopiness and listlessness. Recovered survivors became "carriers." The disease is not transmitted by direct contact between sick and healthy birds, nor by feeding or injecting infected material. Feeding emulsions of blackflies caused the disease to appear in less than two weeks. Fly-proof shelters afforded complete protection. Losses among affected birds ranged from 10 to 50 per cent.

—Carl H. Schroeder, Everybodys Poultry Magazine, Aug.-Sept., 1939.

## Worm Infestation and Fowl Paralysis

The relationship of worm infestation to fowl paralysis, "big liver disease" and allied conditions is still a matter of debate among investigators. Some hold that intestinal parasites have no effect upon the occurrence of this disease complex, while others maintain the opposite point of view, while still others feel that parasitism, including coccidiosis, affords an easy port of entry for the causative agent and, thus, are at least indirectly associated with each other.

A new conception is advanced by P. A. Clapham (Jl. of Helminthology, Vol. 16, No. 1), and supported by circumstantial, but considerable, evidence to the effect that the presence of the viruses or agents responsible for paralysis, leukemia, etc., may predispose the chicken to infestation with worms.

—Carl H. Schroeder, Everybodys Poultry Magazine, Aug.-Sept., 1939.

## Ants Are Intermediate Hosts to Some Tapeworms

Ants act as intermediate hosts for some tapeworms. The role of ants as intermediate hosts has long been suspected, but recently investigations by Jones and Horsfall have produced definite evidence, at least as regards two species of tapeworms, including the one causing so-called "nodular disease," a condition affecting the intestinal tract and sometimes mistaken for tuberculosis (Jl. of Parasitology, 21, 442-443; Science 83, 303-304).

—Carl H. Schroeder, Everybodys Poultry Magazine, Aug.-Sept., 1939.

## Potency of Egg-Propagated Laryngotracheitis Virus

Tenth generation egg-propagated laryngotracheitis virus dried and held in vacuum under refrigeration was found by F. R. Beaudette and C. B. Hudson of New Jersey Agricultural Experiment Station, and reported in the Journal of the American Veterinary Medical Association for September, 1939, to maintain its potency and immunizing power in laboratory experiments over a period of 421 days, even when used at the rate of 1 milligram per cubic centimeter of diluting agent.

Virus that was 128 to 460 days old gave equally good results when used in vaccinating more than 5,000 birds in seven commercial flocks, when used at the rate of 20 mg. per cc. of diluting agent. Twenty-fifth generation laryngotracheitis virus also maintained its immunizing power, but the smaller doses employed in the experiments gave inconsistent results.

## Protein Needs of Chicks

Protein levels of all-mash rations, ranging from 13 to 19 per cent of protein, for White Leghorn pullets up to 22 weeks of age were tested by J. S. Carver, E. I. Robertson and J. W. Cook, all of Washington State College, and by V. Heiman of Kasco Mills, Waverly, N. Y. Results of their work were published in the proceedings of the Seventh World's Poultry Congress.

These investigators found that the groups fed 17 per cent of protein from 1 to 6 weeks, 15 per cent from 7 to 12 weeks, and 13 per cent from 13 to 22 weeks showed slightly superior growth to any of the other groups. The pullets fed a 19 per cent level from 1 to 3 or from 1 to 6 weeks of age showed no advantage in body weight over pullets fed a 17 per cent level, at the end of a 22-week growing period.

High protein levels caused the pullets to reach sexual maturity a few days earlier than those fed lower protein levels. Efficiency of the feed and protein steadily decreased with advancing age of the pullets.

## *Broodiness Can Be Reduced Through Careful Breeding*

Breeding to reduce broodiness is one of ten points in the Massachusetts poultry breeding program. In 1913, when the experiment was started at Amherst, 90 per cent of the Rhode Island Reds showed evidences of broodiness during the pullet year. A quarter of a century later, it was reduced to 2.16 per cent. The flock has never been entirely free of it, though the general trend has been toward a gradual reduction.

It is listed by the geneticist as a dominant character. It is hard to eliminate entirely from a flock because the male does not indicate directly his possible broody inheritance. Then too, a female may not go broody during her pullet or even her second year but may defer it to a later period. Since most breeding work is on a family basis, if any broodiness is found at all in a given family, it ought to be found in 25 per cent of the daughters unless some environmental factor is preventing the exhibition of it.

In a practical breeding program, it is not easy entirely to eliminate broodiness. Intensity of production or the rate of lay during the winter period has been found to be greater in broody birds. In breeding high producing strains, broody individuals frequently have been found almost indispensable. In our experience at Massachusetts State College, however, we have found that flock averages of 210 to 225 eggs without culling can be obtained with 10 per cent broodiness or less.

—G. T. Klein, Poultry Tribune, June, 1939.

# Problems in Laying Cage Management

By A. Trippitelli

*Condensed from a Talk*

WE must look at this laying cage system of producing commercial eggs as a new intensive system of poultry keeping far removed from the ordinary floor type and requiring quite different management. The human element is an even greater factor than in the older and more standardized floor system.

With the floor and range system, nature bridges many a gap and the margin between mismanagement and failure is wide, therefore, mismanagement is very prevalent; whereas, in the battery system the margin is so small, so very definite, that the least diversion from any of the essential principles will bring dire results.

There is something about poultry raising that fascinates a person to such an extent that failure after failure, depression, low egg prices, disease, fire, floods, hurricanes and all the rest of the evils, will see most floor system poultrymen come up with jaws set to try again and again and with each new batch of chicks starting over again often with just as much enthusiasm as the first lot they ever had and with the dream that these will be the best. This stick-to-itiveness, from my observation, has often been lacking in battery operators. Maybe there is something lacking in the battery system to hold this enthusiasm, but the main reason, I believe, is that often the wrong people have gone into the battery system.

### Precision Methods Necessary

There is one word that stands out in the foreground of successful battery plant operation and that is "Precision." It covers precision of feeding, precision of air circulation, precision of cleaning, precision of culling, precision of replacement and precision in checking up on one's own technique. Precision is the life of any and every factory industry, and the battery system is actually factory operation and has to be run with the same clock-like precision by skilled technicians. Let one operation fail or fall below par, and the whole line-up is affected.

### The Matter of Fresh Air

The supply and distribution of fresh air has been one of the least understood and most abused factors in the battery system. We knew to a certain extent that fresh air was necessary but it is not until lately that we are finding out just how much air the birds require and how important it is that they get it. A bird requires 2½ times more oxygen than any other farm animal per 1,000 lbs. of live weight.

Dr. M. W. Emmel of the Florida Experiment Station reports that most battery deaths and culls are indirectly caused by a lack of oxygen which produces a blood change causing a condition of auto intoxication which weakens the bird to a point where she will succumb to any pathological condition she may be predisposed to such as battery nephritis, indigestion, or any virus or bacterial invasion to which she is subjected.

The general course has been to install a good sized fan in a battery room and feel that the ventilation problem was settled. Nothing could be more hazardous or futile. Unless the changes of air be computed so that we can get at least eight complete changes per hour, the operator is groping in the dark and may never associate the enormous breakdown among birds to insufficient oxygen.

### Oxygen Starvation

Too many battery operators depend on forced draft ventilation only for air, and seem to have an unwarranted fear of drafts. Of all the ailments of poultry I have diagnosed in laying cages, and I dare say I have seen almost all of them, I still must see my first case caused by drafts. The word has become such a bug-a-boo that I have seen the operator of a leading battery plant actually testing door jambs and window casings with a lighted match. Needless to say, this plant was suffering from oxygen starvation.

I have noticed a definite correlation between the number of windows in a laying room and results obtained. The more windows, the better results, but windows that are kept closed are of almost as little use as a blank wall.

Just recently I went through a plant with plenty of windows, but they were open just 4 inches at the top, and the ceiling fans were operating at full speed. It was a warm day and every window in that room should have been wide open with no need for the fan.

In the battery laying or developing room, the cages themselves form an obstruction to the circulation of air and we can usually find dead air spots, for the force of the fan at one end of the room, or overhead, is not sufficient to pull the air evenly between all decks of the batteries and from the four corners of the room unless we have sufficient windows or other intakes on both sides of the room. The windows, if wide open, may also act as cross ventilators when the fan is not used.

Dr. Emmel further stated, and I have found this true in my own observations, that the mortality in a battery room, without making replacements, drops appreciably as the number of birds remaining reaches a point of equilibrium with the amount of oxygen in the room. Our problem then for profitable battery management is not to leave those cages empty, but to supply enough fresh air to allow good results with all the cages full.

The ideal to strive for is to have volume through large openings well distributed rather than speed of air through restricted intakes with real danger of drafts. Remembering our principle of rather open front houses for floor birds, it is only natural in batteries, where we have approximately twice as many birds, to have double the ventilation to supply twice as much fresh air per cubic foot of space.

### What About Heat?

Heat has become a minor factor since we have learned that birds in cages do best at a winter temperature just above freezing. With a well insulated house, it is only on extremely cold days that artificial heat need be used. Even so, it is necessary that the heating system be such that warm air is evenly distributed to prevent overheating birds in one part in order to get enough heat in another part of the room.

### Preventing Off-Feed Condition

The feeding of birds in cages is a delicate and highly specialized problem. Their inactivity and easy access to feed will often produce a stagnant

Presented at Massachusetts State College, Farm and Home Week, Amherst, Mass., July 26, 1939 or off feed condition which may be marked by a sudden slump of production and more or less molt. To prevent this, the operator must develop a plan of feeding so as to keep the birds interested in the feed at all times. This can be done by feeding regularly at least every day just enough feed to last the birds until the following day. As the birds get down to the last fine particles of the mash, it becomes more difficult to pick it up especially if a flat bottom hopper is used. This will provide a period of semi-starvation which will rejuvenate the appetite and keep the consumption of feed up to a high level.

I have found that operators using scratch in cages overdo it; also, the feeding of scratch will cause a tremendous amount of excitement among the birds. With a well balanced battery ration, the elimination of scratch will further foolproof the management and save a great deal of labor.

### Disease Hazards

Contrary to early opinion, birds in cages are susceptible to most serious diseases and many of the same parasites as floor birds with a new disease already established (Battery Nephritis—C. E. Lee—U. S. Egg & Poultry Magazine). However, the odds are in favor of the cage birds for prevention is much more simple, although the cure may be more difficult.

Laryngotracheitis is the most common disease among caged layers. This is usually introduced by the operator who wants to fill his laying cages before he has enough of his own pullets. The birds he buys may be apparently perfect specimens; however, a week later his own pullets are often down with laryngotracheitis while the ones he bought are immune. He finds it hard to believe that these birds were the carriers, but in every case a history of the purchased birds shows a mild attack of the disease during their growing period or sometimes recent inoculation. The same applies to hens or broilers. The vaccination for laryngotracheitis is usually best done as the chicks are moved from the chick batteries at 4 to 5 weeks old. At an outbreak of this disease, the vaccination must start at the first vulnerable point of the circle and on to the last layer.

Chicken pox is common, but not as virulent, and most cases show up in a diphtheritic form, the birds dying from suffocation, thus sometimes leading to mistaken diagnosis of laryngotracheitis. The important thing to bear in mind is that at the first sign of a respiratory trouble several birds should either be shipped or taken alive to a well-equipped poultry laboratory for definite diagnosis.

### Chick Bronchitis

Baby chick bronchitis has recently become very prevalent and discouraging as there is no vaccine as yet to prevent this and no cure, and regardless of how thoroughly the chick room is fumigated and disinfected, the disease seems to linger from batch to batch. The only way to eradicate this disease is to leave the room idle for at least a month, and better still, two months, with four or five day wetting with water followed by scrubbing, disinfecting and fumigating, and paying particular attention to the source of the chicks.

### Coccidiosis and Worms

Intestinal disorders such as coccidiosis and worms are very common when birds are range reared and put in cages, and this practice is increasing, for in many cases conditions in the developing and growing rooms are such that better birds can be produced on range. Steps must be taken to insure a clean and healthy intestine; this can be greatly aided by dosing the birds with Iodine Vermicide-Merck followed up by a second dose if necessary. Birds reared in batteries are usually clean, although I have seen cases of intestinal coccidiosis from time to time in some plants. Personally, I believe that if a battery plant is properly located for best marketing, land would be too expensive to have enough to properly range birds, and with the proper setup and management, pullets that will live and lay as well as range birds can be produced in batteries.

### Mites and Lice Too

Red mites are a serious plague and, although not very common, have been the downfall of several plants. Their extermination is a serious problem as the mites will crawl to the innermost folds of the metal holding the wire partitions, and no spray can reach them. Fumigation and soaking are about the only remedies. Mites are usually introduced by buying grown stock from range birds and by sparrows and other birds that have access to the battery rooms. Lice are introduced in the same way. A dab of nicotine sulphate on the breast feathers, fairly well down on each bird, applied with a brush will control any outbreak of lice.

Range paralysis is very common. Strains of birds that carry or lack resistance to this disease and show just a few casualties under good floor management may produce enough paralysis in cages under poor management to cause much loss. Therefore, it is doubly important to select a strain for cages that is known to be free of this trouble or, better still, select one that has been through the malady and the trouble eliminated by selective breeding over a period of years.

### Battery Nephritis

Battery nephritis is a disease particularly associated with battery birds. This is more of a physical breakdown of the kidneys due to lack of exercise and subnormal vitality. Of late I have been able definitely to recognize a correlation between the severity of this disease in several instances and the amount of fresh air in the laying cage room. Which brings us right back to the fact that every bird has a "weakest link." How and when that link will snap depends on the breeding back of the bird and the management.

The biggest handicap the battery system has had to overcome and one that has retarded their popularity considerably has been the first rush into batteries by individuals with no poultry background or poultrymen far removed from cities with plenty of good cheap land who thought that batteries were a labor saving device solving all poultry troubles and doubling their capacity with the same amount of labor and buildings.

### Sensitivity of Caged Layers

Since birds in batteries are so helplessly dependent on the operator, it is not strange that they should show almost immediate response to good or bad management. I have followed closely, management on different battery plants, where everything seemed perfect, the birds in pink of condition, yet production was poor. A change of personnel working under exactly the same conditions produced miracles in production within a few days. The proper technique in handling small details which would not have been so important with birds on the floor was enough to start the machinery in the bird working with a clock-like precision. This sensitivity of the birds in cages naturally opens up a new field for operators who have the required "cage sense."

One large plant costing $50,000 was put in charge of a dirt farmer whose attitude was, "Tain't right to keep chickens in prison like that." Do you wonder that that plant is now closed and those who do not know the inside story will condemn the system?

We must think of batteries as the ultimate effort of man to apply scientific mass production methods to the poultry business and since we would never dream of putting inexperienced laymen in charge of any other such highly specialized enterprise, we have all been sadly mistaken to think we could get away with it in batteries.

The same sensitivity of birds towards the operator applies to other factors, such as light, air and feed. The proper adjustments and the diffusion and intensity of light has increased production 20 per cent and over and made good producers of birds that would otherwise have been culled out. The installation of forced draft ventilation with proper arrangement and use of windows has increased production generally from 10 to 30 per cent on a number of plants.

### The Feed Problem

Feed enters into the picture very prominently. In the early days many formulas were compounded overnight with disastrous results often due to excessively loose droppings. Pellet feeding often produced the same or worse results due to greater water consumption with the added disadvantage that the birds would gradually go off feed because they would periodically overeat.

Steady feeding of mash and pellet combinations or mash and grain or all three is at best a hit and miss combination nearly impossible to control properly, with a variation from an overfat condition to emaciation often due to fatty degeneration of the liver. The birds without exercise cannot burn up cracked corn and corn meal as the floor birds do. Besides, the feeding of supplements increases labor.

The question of proteins, vitamins, minerals and fiber is one that has to be completely readjusted for battery birds. Their mode of confinement necessitates a complete readjustment of the formula to such an extent that today a complete and efficient battery mash will usually supply and maintain a healthy bird in perfect laying condition with no supplements other than oyster shell and grit fed twice a week on top of the mash at the rate of 4 parts oyster shell and one part grit.

The mash should be fed at least once every day and only enough that will last until the next feeding or a little less. This means that the hoppers must be practically clean of feed at the time of feeding. This automatically maintains the appetite of the birds at a high level, keeps them always interested in the feed and so prevents a stagnant appetite or "off feed" condition. It is not necessary to let the hoppers remain empty for any great length of time, for as the layer of mash on the floor of the hopper becomes thinner, it is more difficult for the birds to pick it up and it takes longer to get an appreciable amount.

### Replacement of Birds

One of the most serious mismanagements in batteries has been the arrangements for replacements. All too often, I have seen empty cages and birds that should be replaced, but were not because there were no pullets to take their place. We must look on the individual cage as a potential egg producer and when that cage is idle, our overhead jumps. To avoid this the operator must have more pullets maturing every two weeks or month than is likely to be absolutely necessary. This will force him to check up on the birds in profitable production and so insure the maximum return from the cages.

This system, of course, means that the battery operator will have a steady supply of fowls and broilers the year round. If he is situated out in the wide open spaces, it becomes a problem to dispose of them profitably, whereas if near a city or large town, he can turn it to a very profitable cash crop. The fowl, even though they have been in cages for a year or longer, are superior in flesh and eating quality to the floor birds. They can very well be sold as roasters at a price that will more than pay for the pullets replacing them.

With the improvement of the battery system through experience in management, selection of healthy stock bred for high vigor and production and construction of plants with ventilation foremost in mind, we naturally eliminate excessive mortality as now prevalent on many plants. With this excessive mortality eliminated and culls reduced, the efficiency and productivity of the birds will increase. Under these conditions, it may only be necessary to raise three broods of chicks per year, eliminating summer brooding entirely. This will give the operator a chance to thoroughly go over the idle equipment and the chance to break the cycle of any existing baby chick bronchitis.

On several of the latest and most successful plants, I have checked group after group of birds finishing their first year production, and it is encouraging to see the records of bird after bird with 250 eggs or more still going strong with perfect appearance of health.

If I were asked what made a battery plant successful, taking for granted that the setup was fairly satisfactory, I would not hesitate to say that the successful plants with which I am acquainted all have a definite retail or private market which takes everything from culls to broilers at retail prices in any quantity the operator has available weekly. The ability of a good battery plant operator to get and to hold such trade is eloquent testimony to the soundness of the battery system when properly set up and managed.

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## *Vacuum System for Removing Litter*

An interesting device on the John E. Kimber poultry breeding farm at Niles, Calif., is the vacuum system for cleaning litter out of poultry houses. By changing intake nozzles, it will handle either straw or peat moss litter. The litter is carried through pipes to a central power plant at the rate of 135 feet per second. Power is supplied by a 50 hp electric motor. With this equipment in use, Kimber says that the speed of the cleaning work is greatly increased, much labor is saved and the men are released for other work.

—Pacific Rural Press, August 26, 1939.

# Diary of a Poultryman

By P. S. White
Egg Farmer, Wayne County, Ohio

*Condensed from Everybodys Poultry Magazine*

**Sept. 1**—Auction day for live poultry, and I had two coops of old hens to sell. They won't bring very much in the way of cash money, but the big idea is to get them off of the commissary. Running gears I call them, for when they are run through the "works" on this ranch, there is not very much left but the gears. They ought to make soup stock or at least chicken flavored soup stock if one wasn't particular as to the amount of meat in the soup.

We started cleaning the north house with a vengeance. This is the last house. In a few days all the cleaning will be done for this year.

**Sept. 2**—The return load from town today was five bales of excelsior and seven bags of oyster shell. It certainly does take a pile of material to get the houses ready for pullets. Excelsior, peat moss, oyster shell, creosote, crank case oil or crude oil, brooms, new window panes and a new roof patch.

Next year it will be necessary to replace a few sash in this house. I hope we can patch these up, so they will last another year. A few days ago we replaced four old sash in the east house. They had decayed beyond all redemption. We salvaged the panes that were salvageable and made fire wood of the frames. They had lasted 11 years, and maybe that is the life of a window sash in a chicken house.

**Sept. 4**—This varmint business has got me down. There has been a let-up in its activities during the past few nights, but it started in again last night. A nice, big pullet was killed and I feel rather let-down. This let-up and let-down business is the difference between profit and loss to me. Traps, dogs and watchful waiting with loaded guns are all of no avail. It looks as if I have just about come to a showdown which means that I will have to let nature take her course. After all, the poor animal has to eat, but it is rather expensive eating as far as I am concerned.

**Sept. 5**—Two holidays in succession. All the help is away celebrating the occasion, so Donnie and I are doing the work. Tomorrow, Donnie starts to school and I will feel so all alone. Sometimes it seems to me that it is pathetic how I depend on him, a 12 year old boy. We talk, plan and work together and almost every day I ask his advice about this or that. It will be with a heavy heart that I will see him and Nancy Jane get on the school bus in the morning, and yet that is the very thing I want them to do. Human emotions are rather queer things.

**Sept. 6**—A new order will have to come about. With Donnie at school, we will have to arrange a new schedule of work. It will, in a way, automatically systematize itself. He will have work to do before and after school, work that will fit in our regular schedule.

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(Everybodys Poultry Magazine, Aug.-Sept. 1939)

The east and west houses are standing idle, all cleaned up and no where to go, so to speak. They are waiting for the pullets and we are not ready to move from the range.

**Sept. 7**—"Kid" White is not canning many vegetables this year. All the corn, string beans, butter beans or limas are being put in the local cold storage locker plant. They are put up in 2-pound containers, quickly frozen at 12 degrees below zero and then held in our locker at about 10 degrees above zero. The corn is cut off of the cob, with the exception of a few dozen roasting ears, which will be used for special occasions. She also has peaches, blackberries, strawberries, asparagus, dandelion and pokeberry sprouts. The latter is just about the best green feed going when cooked with bacon and dressed with vinegar. I would rather have it than spinach any day, although she has a couple of bushels of spinach in storage also.

**Sept. 9**—The pullets are not eating very heavy of mash, but they sure do mow down the grain, mostly corn. We are feeding some wheat also, but it is the corn that seems to be relished the most. I have grown the frame all summer, and now is the time to start putting on the fat. There is a long, hard winter ahead of them with plenty of forcing, so they must be in good physical condition to withstand heavy production.

So far there has been no summer or fall colds. But there should be none as practically all of them are roosting in the trees. I still hold to the idea that a good leafy tree is the best summer colony house. As a rule, our best pullets are the ones that roost in the trees. They are close to nature.

**Sept. 10**—Cleaning day once again and a rather quick job at that. The old proverb about a short horse being soon curried holds true also at this time of the year as far as cleaning dropping boards is concerned. When the flock has been reduced through culling and the remainder doubled up, the labor in caring for the old stock is at a rather low point. The picture will change in a month when we start housing the pullets. Then we will have work and responsibility.

At present, it looks as if we might have a dry, warm fall. If this happens to be the case, I think moving into winter quarters will be delayed. It has been my experience that the pullets are better off out doors when we have exceptionally fine weather in the early fall.

**Sept. 12**—The old hens are going to get the works in the morning. I have wound the clock and set it for 4 a.m. This means that it will be time to get up and get busy. I need the eggs. Egg prices are going to be on the up and up and I can always use the revenue. The "revenue" is what makes the wheels of industry turn on this ranch.

The electric lamps have been washed to remove dust and fly specks. I have never understood why flies take special delight in roosting on the lamps. Anyway they are clean now and the light should flow from them like a spring of pure, sweet, distilled water.

**Sept. 13**—Maybe I am counting the eggs before they are laid, but anyway, I put on a full load of egg cases as a return load. I realize that I won't need them all tomorrow, but it is a good policy to prepare for war in time of peace. Probably I am too optimistic, but I have never been able to accumulate too much of anything that is good and valuable. And I think that everything is good and valuable if one has a place for it.

To illustrate the point, the Curry Lumber Company has been carrying some dead stock in the form of four uncalled-for custom built quarter sawed oak doors for 10 years—beautiful doors if one appreciates the natural grain of wood. The doors cost $12.00 apiece originally but the bargain counter price was $1.00 each. I bought the whole works, and Kid White and I are going to build a tenant house around those doors.

**Sept. 16**—I have always been told that Friday was a poor day to start a new task. But poor or bad, we started painting the east house. There is no question but what the building needed the paint; it is a common ailment around these parts. And, on the other hand, we have the time for we are away out and ahead of the work. We are actually caught up with the work and looking for something to do.

**Sept. 17**—If I could just get ahead of this varmint out on the range, life would be sweeter yet. Another periodic visit last night with the result that I put the running gears of what had been a fine pullet in the incinerator. It is a phantom varmint, no one knowing whether it travels through the air, on the ground or underneath the ground. Someday there will be a day of reckoning and it will be a Great Day when it comes. This "something" has cost me a lot of money, in fact, so much money that I don't care to add the death sheet. The death sheet only records those we found. I wonder how many carcasses we did not find?

**Sept. 19**—In order to do a good job of painting, it is necessary to prepare the surface to be painted. It seems to me that the actual operation of applying the paint is going to be the smallest part of the job. All of the old paint is being removed by scraper, steel brush, steel wool and sandpaper.

This is the third day Harold and I have been painting the east house and we haven't applied a brush full of paint yet. What I can't understand is why it is that I let the building get in such a condition. The north side is in good shape, but the east, south and west sides are standing in the need of paint. At least three coats will be needed on the west end.

**Sept. 21**—At last we are ready to paint. Tomorrow morning we will start after the siding has dried. It is an awful poor policy to paint over a wet surface. The surface is in good shape. It has been scraped and brushed to such an extent that we are right down close to the cob so to speak. The paint has been prepared, that is, it has been mixed or diluted with oil and turpentine and will stand over until morning. This first coat should be thinned out with oil so as to get a penetration.

It has always been my policy to let paint stand over night before using it. Then we stir and stir before starting to paint. Preparedness is a prime essential when painting.

**Sept. 27**—Didn't have any time to visit with the Auction boys this morning. Instead I had to get a 5-pound can of putty and hit for home. While this first coat of paint is drying on the east house, I am going to reglaze the sash. The condition of the sash is appalling. There is not one but what doesn't need a good shot of putty. I doubt if 5 pounds is going to be enough, but it will be a start. And, like painting, the first operation in reglazing a sash is to get the sash in condition to reglaze. The best bet was to take them all out and put them inside the house. Now we can work on them anytime. It is a mystery to me how all of the panes of glass were broken, but there was a pile of them.

**Sept. 28** — Visitors to disturb the peace. While they didn't exactly disturb the peace, they sure did break in on the work. Visitors are a necessary evil, so I have reconciled myself to the fact. Just stopped working on the sash and toured them over the ranch.

This sash business sure is a job. It takes time to nail them back together, scrape out the old putty, scrape off the old paint and sand down the fuzz of the wood. One of the secrets of making putty stay put is to have the sash well oiled. So before I can actually do any glazing, the priming coat will have to dry. Then the glass will be bedded in putty and glazed. It just looks to me as if four coats of paint will be necessary.

**Sept. 29**—During the past few days Donnie has been able to catch a few cockerels that went in the colony houses. Today was a good time to get rid of them as well as a few hens that hadn't quite reached the running gear stage. I call it science when I can force the life out of a hen for a couple of years and then sell her before she reaches the running gear stage. It is quite true that the price per pound isn't much, but I can buy fertilizer for the truck patch cheaper than I can run them through the incinerator. A poultry buyer told me recently that he sold running gear stock to fox farms. That is what they say about blood spot eggs—too.

**Sept. 30** — The east and west ends have been given a second coat of paint. They really could have stood a second coat the day after the first one. The siding drinks the paint well nigh as fast as it is applied. I haven't gained very much by putting off this job of painting. Frankly, I think I have paid dearly for my negligence.

## *The Drop in Poultry Consumption*

According to the Bureau of Agricultural Economics, consumption of poultry in the U. S. in 1938 declined from a 10 year average of 22.6 pounds to 20.2 pounds or a loss of a little over 10 per cent. Nearly 2½ pounds of poultry per person isn't much for a single family, or even small communities, but it becomes a lot of chicken when considered on a country-wide basis.

One of the incubator companies, assuming that the total population runs to 130,000,000, has made some interesting computations in connection with this matter. The lower consumption last year represents a potential loss of market for 312,000,000 pounds of poultry. If one figures that these birds weigh four pounds apiece, then the deficit represents 78,000,000 chickens, and that's really a very fair number in any county in the country. As a matter of fact it represents about four times the number of poultry in the biggest state in the Union.

Pursuing the matter further, one might observe that around 100,000,000 baby chicks would be required to rear the 78,000,000 four-pounders, and they'd eat perhaps 1,250,000,000 pounds of feed. At the rate of 350 chicks per house, 223,000 brooder houses and brooder stoves would be required and $1,000,000 worth of feeders, fountains, etc. would be needed.

Some probable reasons for this decline in poultry consumption have been enumerated as follows: changing living conditions, antiquated marketing methods, faulty production standards poor preparation of poultry dishes, and pressure of other food products. No doubt other factors are involved in the declining use of poultry meat, but only a thorough study of the situation can reveal all the causes involved.

Some believe that "Fewer festive occasions in the homes of the nation probably have a lot to do with the declining demand for poultry. Chicken has from time immemorial been the chief feature of company dinners." The increased interest of women in jobs and other activities has been tough on poultrymen, because after all, it does require a little time to prepare a chicken dinner properly. A great many women are too "busy" to cook.

—Wm. F. Kirkpatrick, Storrs Laying Contest Press Bulletins, Aug. 18 and 25, 1939.

## *The Place of Commercial Hatcheries in the Industry*

The commercial hatchery has a distinct place in our industry. When you have that many hens under your care, with the idea of doing improvement work with them for your customers, you have a distinct responsibility.

It should be the center of advice for those who are furnishing the supply, for the ones furnishing the eggs are not the advanced breeders. I think that a considerable amount of improvement work is absolutely necessary or else a commercial hatcheryman is going to fall by the wayside in the near future.

The flock improvement work that should be carried on with a commercial hatcheryman would be the limitation factor with his future business, if he earnestly and honestly intends to have flock improvement work. After all, the success of the commercial hatcheryman is going to depend very largely on the amount of improvement work that he really does with his flock. If he is going to produce a good article, he is going to give his efforts decidedly to flock improvement work. Limitation is the mark of distinction; as to where the flock improvement work should stop or begin, is arbitrary entirely. It is an obligation to the customers of the commercial hatcheryman to do this improvement work more and more every year.

The commercial hatcheryman is attempting a mass production. He is attempting to accomplish things with from 100 to 300 or more flocks that the breeder hatcheryman is attempting to do with one flock. Naturally, there will not be the individual results. There will not be the end reached as distinctly in such a short time as in the case of a breeder hatcheryman.

Eventually, year after year it will be a source of gratification to see the customers making money out of a better grade of stock furnished by a better grade of eggs.

—Condensed from talk by D. D. Slade, presented at Seventh World's Poultry Congress, Cleveland, Ohio, Aug. 4, 1939.

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# State Exhibits at the Congress

By Jas. T. Huston, Jr.

**Connecticut**—The statement, "A World Leader in Poultry Disease Research," topped this beautifully modernized display, under which appeared enlarged photographs depicting the methods used in study and practice which have enabled the state of Connecticut to attain this position. In the foreground, a large egg revolved on a base on which appeared the statement, "Connecticut Hatches More Pullorum Free Chicks than Any Other State or Nation," which is due to the fact that the cause of the disease was discovered by Dr. Rettger of Storrs in 1899, and a control program was adopted in the state 25 years ago. There are now more than 300,000 breeders in the state certified as free from Pullorum. A beautiful booklet, prepared especially for the World's Poultry Congress, was a worthwhile souvenir to be had for the asking.

**Florida**—A large display with tropical plant life artistically arranged, was flanked at the ends by magnificent live specimens of White Leghorns and Rhode Island Reds. Parts of the display were cleverly animated: four hens sitting around a bridge table conversed audibly regarding Florida's advantages from the standpoint of poultry production; in a model of the Florida National Egg Laying Contest, the hens were picking up feed from the ground, while a couple of chickens realistically raced across the background. Attractively lighted lettered panels gave statistics on the growth of the poultry industry in the state, and enumerated the services afforded by departments of the state government. A colored quartet rendered vocal selections at frequent intervals.

**Illinois**—A comparison of the farm scene of 100 years ago with that of today was very effectively executed in the Illinois state exhibit. On one side was the farm kitchen of 1839, a replica of the kitchen in Abraham Lincoln's New Salem log cabin. Over an open fire place, on a spit, a turkey was being roasted. Hanging on the walls, and in the corners, were some of the crude cooking and farm implements of the day. Contrasting with this, and showing the one hundred years of progress, on the other side of the display was a model electrically equipped farm kitchen of 1939 with a turkey roasting in an electric stove. Illuminated photos carried out the same idea of 100 years of progress, showing posed illustrations of farm methods of 1839 in comparison with actual 1939 farm scenes.

**Indiana**—A beautiful display in blue and white, topped by the slogan, "Indiana is Out in Front." A refrigerated case contained dressed poultry and various state grades of eggs, produced in the state. Moving slides at each end and in the center of exhibit pictured flocks and poultry activities in the state.

**Iowa**—Display consisted of two huge maps surrounded by panels containing statistics on Iowa's production of poultry products, such as: First in poultry production with 200,000 farm flocks and 25,000,000 laying hens; First in egg production with 195,000,000 dozen eggs annually, and 160,000,000 dozen marketed annually.

First map, electrically operated, gave location and number of hatcheries, carload shippers and poultry feed mixers in the state. The second map, of the United States, showed actual area of the state of Iowa, superimposed upon a much larger outline of the state, portraying the comparative value of the poultry products produced in the state of Iowa. Consumer posters such as one entitled "Keep Life and Luster in Hair by Use of Eggs" were also part of exhibit. The display was built as a W. P. A. project.

**Kansas** — A huge reproduction of a hen sitting on a nest occupied the entire back wall of this exhibit, and was the center of attraction. This hen "talked" over a loud speaker in demonstrating the formation of the egg in her body from the time the feed and water were taken in until the egg was laid. The many onlookers could see the egg actually take its path, while forming, through the hen's body.

Another interesting arrangement in this display consisted of an endless chain of eggs leaving the poultry house, entering a hatchery, and emerging as baby chicks. Some 600 strands of grains of hard winter wheat, each 15 feet long, and each strung by one of the 4-H Clubs in the state, were used as the decorative scheme of the exhibit. Transparencies showed the research work done at Kansas State College, and photographic enlargements and maps showed the extent of the poultry industry in Kansas.

**Louisiana**—The stories of Evangeline and Jean La Fitte were beautifully dramatized by means of geometrical perspective paintings placed in panels. The various agricultural and mineral products, and products of the sea which are a part of the state's industry, and which are used by the poultry industry and its related industries were attractively displayed in glass containers in lighted cases.

**Maine**—The up-hill climb from old fashioned to modern methods of poultry husbandry was dramatically portrayed by means of a model of a mountain road on which, first an ox team, then a horse and wagon, and finally a modern motor truck, are climbing to the summit. Background panorama showed Mt. Katahdin and Maine Lakes. Interesting was reproduction of an early trapnest, into which a mechanical hen enters, lays her egg, and cackles realistically. An imitation waterfall carried the lettering, "Combination of modern methods produce a living stream of good hatchability, healthy chicks and high producing flocks." The bulletin, "Pullorum Disease on the Run" told the story of Maine's Pullorum eradication program, from 22.3 per cent reactors in 1921-22 to .05 per cent in 1938-39.

An attractive booklet "The Maine Poultry Industry," contained an invitation to Poultry Congress visitors from Governor Barrows either to visit or make their home in Maine, and described the state's poultry industry, and scenic beauties.

**Maryland**—"Lady Eglantine," the first 300-egg hen, who laid 314 eggs in 1915, was actually to be seen—thanks to skillful taxidermy—in the Maryland booth. Revolving graphs showed, in dollars and cents, the advantages of producing eggs and broilers in the state of Maryland. A graphic map of the United States was used to show the Delmarva broiler industry, and the extent to which it draws upon other sections of the country for its supplies. Interesting data on the broiler business in Maryland: 25,430,000 chicks started in 1938; 4,000 men constantly employed; $6,465,000 cash investment; $2,450,000 invested in houses alone.

**Massachusetts**—Glass building blocks were utilized attractively to add much distinction to this exhibit. The entire length of the display was surmounted by large old English letters spelling out the name of the state.

Two ingenious mechanical devices attracted visitors' interest. The first, directed to the consumer, consisted of a stage revolving inside a huge egg, with six different scenes, each suggesting a specific advantage of eating eggs.

A mechanical hen quite vividly portrayed the processes and functions of the organs involved in turning out an egg inside the hen's body. Enormous scrolls told the reader of the state's pioneer work in blood testing, its average production of 155 eggs per bird as against the U. S. average of 105.6 eggs, and (also incorporated in booklet form and distributed to visitors) the results of a 21-year study at the State College on breeding for egg production. During this period, average persistency was increased from 247 to 339 days, average number broody decreased from 86 per cent to 2 per cent, average egg production increased from 133.7 eggs to 205.3 eggs, age first egg decreased from 230 days to 197 days, etc. Attendants were neatly uniformed in khaki.

**Minnesota**—"The Land of 1000 Lakes." A model farm home of Minnesota occupied the central spot. Mechanically changing scenes showed phases of turkey and poultry production in the state. Lighted silhouettes advertised the vacation properties of the state, which is termed "A Paradise for Vacations" with "America's Ideal Climate." Booth was very attractively done in yellow and effectively lighted.

**Missouri**—Illuminated photos portrayed research done at the Missouri College of Agriculture, used in advancing standards of Missouri poultrymen, and some of which work has had a beneficial effect on the poultry industry as a whole in the U. S. A. A gigantic egg basket pictured effectively the theme of the exhibit, "The Nation's Egg Basket." An electrically operated map was used to show Missouri's central location, from which baby chicks and poultry products are conveniently shipped to every point in the Union. A model of the state Experiment Station of Mountain Grove, Mo., was also prominent.

**New Hampshire**—Nattily attired attendants in white greeted visitors to the New Hampshire booth, a pleasant bit of New England colonial architecture. Executed in white and blue with three neatly designed colonial-type windows, with window boxes planted in a profusion of summer flowers, this booth showed exquisite taste in design. The center panel, or window, contained a New Hampshire landscape painted by Maxfield Parrish.

Panels of constantly changing photos showed scenes on New Hampshire's famous breeding farms. Attendants obligingly told the inquisitive about the history and fine properties of the New Hampshire, "The Business Fowl of America," and supplied worthwhile literature including the New Hampshire Poultry Growers Association 1939 Yearbook, a reproduction of New Hampshires in full color, and a fine booklet setting forth the beauties of the state of New Hampshire.

**New Jersey**—A series of "firsts," or poultry industry operations in which the state of New Jersey pioneered, were pictured in photograph form. Among these were: first hen laying test; first to tattoo poultry with state police cooperation; first cooperative marketing direct to retailer; pioneers in the broiler industry; first successful auction (at Flemington, and now the largest); first laryngotracheitis vaccination; first shipment of baby chicks by parcel post. A series of colored and illuminated photos depicted New Jersey's fine cooperative marketing program, and how it benefits its members. Also pictured were some of its mammoth hatcheries, of which New Jersey contains some of the largest in the country. A comfortable reception room occupied one-third of this large space.

**New York**—Scratch feed was ingeniously used to form the coloring in the letters, "The Poultry Industry Progresses with the Empire State," which was the theme of this exhibit. Six mural panels showed six stages of progress of the poultry industry in New York state, while large books with mechanically turning pages explained the significance of the murals. The murals pictured developments in the poultry industry within the state by decades, prior to 1890, and on to the present, and showed the progress during each period in education, extension service, scientific research, breeding, egg quality, marketing methods, management, housing, etc.

Extremely interesting was the story told in these murals of the career of Prof. James E. Rice, first as a student at Cornell University, next as a lecturer in poultry husbandry in 1890, in charge of newly established poultry department in 1903, his subsequent work at the college, which was constantly enlarging in scope, and his final retirement from active duties. A large map of the state in the center of the display was used as a motion picture screen, with movies of the state's poultry activities flashed upon that portion of the map's surface in which the particular activity was located.

**North Carolina**—Display entitled "The Balanced State" consisted of a large map of the state with symbols denoting geographical placement of agriculture and industry in the state. Panels, under the heading, "What North Carolina Offers the Prospective Poultryman," carried statements explaining work of the Hatchery Association, R. O. P. Association, Feed Manufacturers Association, and services rendered to the poultrymen of the state by the State Department of Agriculture, and the University of North Carolina.

**Ohio**—In acting as "Host to the Poultry Industry," the state of Ohio provided the largest of the state booths, in which, seated in a theater in a comfortable chair, visitors were treated several times a day to a marionette show with poultry, turkeys and ducks as the entertaining characters.

Alcoves in which five interesting themes were effectively dramatized formed the side walls of the theater, and were as follows: "Egg Quality"—placards and a motion picture portrayed interesting data on egg quality for the consumer. "The World at your Fingertips" — illustrated the scientific knowledge of poultry husbandry made available through Ohio state departments, and showed how this knowledge is disseminated and carried to the poultrymen of the state. "Fight Disease" was the theme of the third panel, in which ingeniously contrived ferocious monsters representing poultry diseases and parasites attack across a "no man's land," against uniformed scientists manning the trenches with symbols of research as their weapons. "Tomorrow" —a modeled landscape showing how poultry production of tomorrow will be located near to the consumer. The city of tomorrow would consume 30,000,000 dozen eggs and 30,000,000 pounds of poultry. "The Turkey"—last of the panels, consisted of a beautiful mural painted in oils by a state university student, and depicted people of all eras in history, and from all nations of the world, offering a toast to the turkey, America's contribution to the world.

**Oklahoma**—A statue of Eleanor Little Star, 18 year old Indian girl, wearing an Indian costume worth $1,000 was one of the features of this exhibit, along with a reproduction of the Will Rogers statue at Claremore, his birthplace, and a working model of a pioneer oil derrick. Slides were constantly projected showing interesting particulars regarding the state and its poultry and turkey operations, one of the most interesting of which is the fact that green feed is grown the year around. Conditions in Oklahoma were claimed to be ideal for all phases of poultry raising.

**Oregon**—A motion picture show, with sound, and in technicolor, entitled "Oregon Attractions," attracted visitors to this large display. Shown in the "talkie" were the state capitol at Salem, panoramic views, air views, salmon runs, beach scenes, fine bridges and highways, caverns, timber lands (1-5 standing timber of the nation) geysers, dude ranches, etc. The Oregon State Highway Department sponsored this film. "Oregon for Quality" was the theme of the exhibit, which treated of Oregon's famous 300-egg record hens, and also of the state's growing turkey industry.

**Pennsylvania**—One of the largest of the state exhibits was devoted to showing the scope of the poultry industry within the state of Pennsylvania, and the work of the organizations having a part in the industry. Mounted upon a huge inclined map of the state, and placed in their geographic positions, were models of the cooperative organizations, the Egg Laying Contest, the Pennsylvania Farm Show, Pennsylvania State College, the State Animal Disease Laboratory, and the four counties which are among the 10 leading counties in egg production in the United States. As each of these symbols lighted on the map, an explanation appeared on a lighted keystone panel directly above it.

Large photomontages at each end of the booth were devoted to the agricultural and industrial resources of the state. Constantly moving upon a brightly lighted stage appeared images carrying a message dealing with the importance of Pennsylvania's poultry industry, such as the fact that Pennsylvania leads all states in value of eggs produced.

**South Dakota**—In spite of the total absence of a state appropriation, a group of state department of agriculture and state college workers raised the necessary funds and supplied time and labor to bring to the Congress a fine exhibit. Over a model of the Homestake Gold Mine appeared the slogan, "South Dakota Hills and Eggs Have Hearts of Gold." A photographic display on which moving lighted arrows took the visitor through the various hatching, brooding, and production stages as practiced in the state was interesting and effective. Scenes of interest through the state were photographically presented.

**Tennessee**—A model train, loaded with live and dressed poultry, moved over a huge relief map of the state, carrying Tennessee poultry products to eastern markets. Photographs over the map describe poultry raising methods and statistics pertaining to each portion of the state. An old photograph of a turkey drive at Sneedville, with growers driving a huge flock of turkeys to the railway shipping point, was of special interest.

**Texas**—"Texas is on the Move." A map of the United States, from which the state of Texas detached itself and rotated on its northeast corner, covering 27 states in its revolution, illustrated this theme, and also served to acquaint visitors with the enormous size of the state. A map of the state of Texas contained attractively lighted symbols picturing the location and size of the turkey and poultry ranches, commercial hatcheries and poultry produce plants in the state. Photographic enlargements showed actual agricultural scenes. A moving chain of turkey eggs formed the background for the announcement that "11,500,000 Turkey Hatching Eggs Produced Every Month in Texas."

The Texas Poultry Federation, an independent body representing all poultry interests in Texas, planned the exhibit and financed it without the help of a state appropriation. The Federation was recently organized to promote better understanding among all branches of the poultry industry in the state.

**Utah**—Natural color photographs of beautiful scenic spots in the state formed a background for statements pertaining to Utah's position as a high ranking poultry and turkey producing state. Utah ranks twelfth in turkey production, and seventh in quantity of eggs shipped to the New York market.

**Virginia** — Visitors entered this completely enclosed exhibit through a replica of the Natural Bridge, Virginia's contribution to the Seven Wonders of the World. The interior was neatly arranged, with approximately 50 enlarged photos covering the walls, treating various phases of Virginia agriculture. An enlarged photograph of the Governor, James H. Price, topped an official welcome from him to visit the state. An automatic slide machine carried scenes portraying various advantages of poultry raising in Virginia. A replica of an incubator built 53 years ago by Sam Blosser, Dayton, Va., and hot water heated, attracted attention of visitors.

**Washington**—Enlarged photographs, some in natural color, and beautifully displayed, told a story boosting Washington eggs. Photos of scenic beauty told of Washington's ideal climate; the story of breeding was illustrated by photos of high producing hens; feeding and management was pictured by scenes of sources of wheat and oats, and also of Washington's fish industry, which provides important feeding substances.

**West Virginia**—In explaining the workings of the West Virginia fresh egg law, the College of Agriculture presented a highly dramatic demonstration of egg quality. Under the heading, "Do you know a fresh egg when you see one?" appeared two enlarged and lighted eggs as they appear under the candler—one fresh, and one of poor quality. Directly underneath, the same eggs were shown realistically in cleverly lighted frying pans, showing the appearance when broken out. A display of the various breeder and hatchery symbols showed the extent of West Virginia's cooperation under the National Poultry Improvement Plan.

**Wisconsin**—A beautifully landscaped arrangement of native plants in their natural state, and mounted wild life formed the setting for a large book which effectively presented the fact that vitamin D was discovered at the University of Wisconsin. Constantly changing pages of this book told of the effects of the discovery of vitamin D on poultry feeding practices.

❧ SPATT KAKA, a cake much favored in Sweden, requires 80 eggs in its making. The only other ingredients are sugar and flour.

—Poultry Tribune, September, 1939.

## *Lights for the Turkey Flock*

One of the minor problems with turkeys, one that causes a lot of annoyance and oftentimes some loss, is the matter of night stampedes. Maybe it's an owl, or a cat or dog, maybe it's just a notion, but too often for comfort your flock is liable to rise up in the middle of the night and scatter to the four winds. This is particularly true where low roosts are used; yet high ones cripple more heavy turkeys than do the stampedes.

The best guarantee against night stampedes is to light the roosting yards. If you have electricity available, a couple of globes will do the trick to perfection. Put them on opposite corners of the roosting corral and go to the house and sleep. Not everywhere are electric lights available, but there always are substitutes. Phil Davis, our Colorado director, used road flares (these little round pots that burn despite the wind) last summer to good effect. Another recommends lanterns. Not so good perhaps, but almost anything is better than nothing at all.

Whether the lights give the birds a feeling of security is a moot question. Perhaps they sense that thieves and marauders, either two legged or four, are less apt to venture into the light. Anyway, the lights have a quieting effect on the birds, they are less nervous and far more tractable.

—Norbest Turkey News, July, 1939.

# A Thousand Poultry Books

By Don Turnbull

*Condensed from Poultry Supply Dealer*

ONE of the features of the times in which we live is a widespread interest in the past, recent as well as remote. Whether we are satisfied with the present or not, we want to know how it came about. Where the recent past is concerned the printed book is the most direct way of satisfying our curiosity."

The above is by R. C. Punnett, English poultry authority.

We doubt if one could find a more suitable place to satisfy his curiosity about poultry husbandry, past or present, than by spending just a few hours browsing through the poultry library of Dr. O. B. Kent of the poultry service department, Quaker Oats Experimental Farm, Libertyville, Ill.

### Biggest Private Poultry Library

His collection of books on poultry is conceded to be the largest private one in existence. He has almost 1,000 different works, many of them several centuries old and it would be hard to place a value on them.

Dr. Kent has been collecting writings on poultry as a hobby for the last 12 or 14 years. Today there are only two other poultry collections comparable to his in this country. One is at the New York Public Library and the other is in the governmental library in Washington.

Through his collection of old volumes one is able to trace the art of poultry-raising back down the centuries. His oldest book was published in 1750. It was first printed in the French language. Dr. Kent has an English translation which was made just a year after initial publication in France. It is entitled "The Art of Hatching and Bringing Up Domestic Fowl," by M. deReaumur.

His most prized book was purchased from Ed House of London during the 1930 World's Poultry Congress. This is a German publication with the broad title, "Bird Book." Dr. Kent's is a first edition. It was published in 1769, or six years prior to the Battle of Bunker Hill in this country.

Many of the old books, however, make reference to works published as far back as 1580. This is remarkable when one considers the facilities for printing in that day.

Poultry was mentioned in literature as far back as 400 and 500 B.C. in China, and some of the ancient Romans gave accounts of poultry raising.

The first complete work on poultry appeared in the 19th century. The earliest English work, of only a few pages, was a translation of "Discours Economique" by Prudent le Choyselat. Punnett says this work is rather incomplete.

Most of these early works prior to the 19th century fall into two classifications. One group is devoted to poultry as a minor source of income, while the other tells how best to raise poultry for the purpose of cock-fighting. Gervase Markham, in his "Cheap and Good Husbandry" which came out in 1614, was of the first group. This book went through 13 editions.

Markham made little mention of breeds. He did stress the choice of a good hen, regarding her as far more important than the cock. His only other mention of breeding concerned the color of the cock as a guide to its fighting ability. In the following century, most of the works on poultry are devoted to cock-fighting and are largely revivals of the opinions of Markham.

By the middle of the 18th century, though, there was evident an increased interest in utility birds, as revealed by de Reaumur's work. Authors spoke of original breeding projects.

Dr. Kent has a copy of the first English book devoted entirely to poultry. It is by Bonington Mowbray and is entitled a "Treatise on Domestic Poultry." This was published in five editions, the first coming out in 1815. The real name of the author is a Mr. Lawrence. Keeping poultry was not a gentlemanly practice in those days, Dr. Kent said, and to protect his honor, Mr. Lawrence wrote under the name Mowbray. His work is conceded to be practical, nevertheless.

Mowbray wrote his book almost two centuries after Markham. Having read de Reaumur's comments on artificial incubation, he experimented with the art and came to the conclusion that any attempt at artificial incubation was not practical and should be practiced merely as a means of satisfying one's curiosity!

### Dixon's Book Started a Boom

The first work on fancy poultry was by the Rev. E. S. Dixon, brought out in 1848. He devotes nearly 100 pages to fancy and ornamental fowl. An account of the China Cochin in this book so stirred the English imagination that the Isles were the scene of a poultry boom and those who had this fowl were able to sell the birds at fantastic prices, accounts say.

Dr. Kent spends much time reading these old books. Many of the ideas exploited by them are still in use today and sometimes are heralded as new findings, he reports. For instance, de Reaumur, who wrote in the 18th century, spoke of lights in the poultry house as a means of stimulating egg production! Rearing and feeding also occupied much of his work. Many practical observations are included. He was the first to size up the utility hen, saying that the "first thing we ought to know is the proportion of the product to the expense: What a hen costs and what benefit she yields her master yearly."

He cited hygienic conditions as best for obtaining good results from a flock. He recognized the value of winter layers and suggested experiments for throwing birds into an early molt. He shows by experiment that new-laid eggs rubbed over with grease or oil will retain their freshness for a longer period of time.

### Many Old Ideas Not Recommended Today

Many of the suggestions advanced by these old writers however, could hardly be condoned by mentors today. For example, Markham, the 17th century author, devised this method of keeping a hen from setting:

"You shall bath her oft in cold water, and thrust a small feather through her nostrils."

His recommendation for a treatment of sore eyes is not any better:

"If your poultry have sore eyes, you shall take a leaf or two of ground ivy, and chawing it well in your mouth, suck out the juice and spite it into the sore eye, and it will most assuredly heal it, as it hath often been tried."

Collecting poultry books as a hobby is a fairly recent activity with Dr. Kent. He acquired a fair-sized library merely as a necessary adjunct to his

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(Poultry Supply Dealer, June 1939)

business. His library received its biggest boost when Dr. Kent journeyed to the 1930 World's Poultry Congress in London. He spent much of his spare time there looking for rare volumes.

Dr. Kent now is concentrating his efforts to obtain an original copy of the first edition of the Standard of Excellence, forerunner of the Standard of Perfection. It was printed during the Civil War.

He has a copy but not the original. Apparently the only original in existence is in the poultry library of Kansas State College.

## *Broiler Raising Combined With Fishing and Canning Crops*

The now important eastern shore broiler industry started as a result of what was then thought to be an unfortunate turn of events. When fowl paralysis became prevalent on commercial egg farms in the Del-Mar-Va area, it forced producers to dispose of their laying flocks, and they were left with poultry equipment that could not be used for profitable egg production. They tried winter broilers and found this phase of the industry particularly well-suited to their local conditions. Its seasonal nature balanced well with their fishing industry and the production of canning crops. Their favorable climate, well drained, sandy soil, and nearness to market were among the leading factors which contributed to the rapid growth of the industry. The success of the early ventures encouraged others to enter the field. The increased volume that followed attracted commercial interests and they, in turn, encouraged additional growth.

At present, there are between two and three thousand broiler producers in the area. They each raise from one thousand to more than two hundred fifty thousand broilers during the year. In recent years, there has been a tendency to shift from winter broilers to production during all seasons of the year. In most cases, broiler production is a part of a general farming or fishing plan. The percentage of broilers grown is regulated by the amount of profit they return in relation to other crops. This allows for considerable adjustment and explains why adverse conditions, such as occurred in 1937, only temporarily halt activity.

In most cases the marketing period for these broilers is between 12 and 15 weeks. Under normal conditions the birds at this age will weigh between 2½ and 3 pounds each. Feed efficiency studies indicate that this practice is probably the most profitable one.

—Excerpt from Talk by James M. Gwin, University of Maryland, at American Institute of Cooperation, Chicago, Ill., Aug. 9, 1939.

❝ MORE and better holidays are in sight, with President Roosevelt announcing that he will move Thanksgiving up a week and Governor Wilson (Iowa) standing pat for the traditional date. If we have two Thanksgivings, one for Democrats and one for Republicans, this ought to be a good year for turkey producers.

—Cliff Gregory, Wallace's Farmer, August 26, 1939.

# VIEWS OF THE EDITORS

### Ever Forward . . . !

"I don't spend any time reviewing the past, or much time reflecting on the present—I always press forward."

My good friend, James E. Rice, who was general chairman of the 7th World's Poultry Congress, and who now at 74 has been elected president of the World's Poultry Science Assoc., sponsoring agency of World's Poultry Congresses, made this observation to me, in the closing hours of the recent congress.

It was that indomitable spirit, that contagious enthusiasm, that relentless driving force of his which first of all helped build a World's Poultry Science Association, then a triennial poultry congress, and later brought the 7th World's Poultry Congress to the U. S. A. This congress is now recorded in history as the largest exposition ever devoted to one branch of agriculture — even ranking in size with the annual International Live Stock Exposition, in Chicago, and the annual Toronto Exposition, in Canada. More than 850,000 people passed through the gates during the 11 days of the congress. Truly, it exceeded the most enthusiastic anticipation of its most loyal supporters.

Looking forward with President Rice, it appears that this exposition may have a far-reaching effect for the poultry industry in five ways:

(1) The educational and motivating power of publicity has been established indisputably.

(2) The motivating ability of county and state poultry organizations for producers has been demonstrated. In their future legislative strength lie many of the unrealized goals of the poultry industry.

(3) Federal and state poultry leaders and employees have received a new vision of the poultry industry's magnitude and economic importance. Greater recognition of the industry's research and legislative needs inevitably must follow.

(4) This billion dollar poultry industry, like a child discovering it can walk, has gained a spirit of courage, confidence and dignity that will lead it on to new heights of achievement.

(5) All branches of the industry are now united behind the common cause of consumer education. A bigger market for all poultry products lies just ahead. By January 1, the congress executive committee, which was asked to expand into an industry planning committee, will have developed a plan, in conjunction with an advisory committee representing one poultry leader from each of 48 states, which will be laid before the whole industry.

Let's keep on working together—and press ever forward. The 7th World's Poultry Congress has shown us the way.

—O. A. Hanke, Poultry Tribune, September, 1939.

### Tops

The World's Poultry Congress in Cleveland was "tops" for all farming history—and when you've said that, you've said about everything.

It is too early to judge what the final results of this inspiring achievement will be. It will probably take on greater significance with the passage of time.

It is enough to say that we, in poultry, have accomplished by inspired leadership and democratic methods, what no other farm industry and no other nation's government was able to do.

Poultry has made its mistakes and made progress slowly. But in doing so we have developed a group of strong, self-reliant leaders who threw all self-interest to the winds for the success of a whole-industry show of strength. In doing so we declare that poultry can lay claim to greater leadership than any of the great farm industries. We did it in the time-honored American way in a modern setting.

—Poultry Item, August-September, 1939.

## Aftermath of W. P. C.

No such project as the World's Poultry Congress could ever have succeeded without high quality man power. This means not only a lot of individuals who were capable leaders in their own particular poultry activities, but also a group who were capable of working together. It is only the highest type of executive who spends most of his time giving orders, and then, as a part of some greater cooperative project can prove equally efficient in carrying out the orders of others. In different language most of us "can dish it out" but not all of us "can take it."

What will become of this fine executive group that so truly represents the American poultry industry? Must they disband to disappear again in their own respective activities? Why can't they be in some way incorporated into a great permanent directive and guiding General Staff? Then their vision and experience would always be available to solve the problems arising within the industry as well as to serve the poultry raisers in their constant battle with all the producers of competing or substitutable products. Certainly our industry, for its own protection, should be as ably organized as others are.

What also will become of the able "unknown soldiers," the capable administrators, who were picked to do the tedious, unglamorous and thankless administrative jobs? I mean the men who handled the membership details, who sold the space, and who co-ordinated and kept out of a jam all the numerous inside activities that might so easily have gone astray. The knowledge and experience of these department managers should not be lost to the industry. They must be placed elsewhere to continue the same diligent and constructive work, we hope with greater recognition and reward.

—Leavitt C. Parsons, New England Poultryman, August 15, 1939.

## A Full Meal

Where can you get a better balanced meal full of vitamins, proteins, minerals—the things that "stick to the ribs"—than in a plate of bacon and eggs or ham and eggs? A man-sized portion will last as long as anything that you can think of for the same cost.

Most of us think in terms of the cost of a dozen eggs, whereas we really should make comparisons between eggs and other foods, pound for pound. For instance, a dozen of eggs of standard size weighs 1½ pounds. At 30 cents a dozen, this is equivalent to 1½ pounds of beef at 20 cents a pound, but where can you get a good cut of beef for 20 cents?

A pound of eggs at 20 cents has everything. It also has plenty of the protective vitamins; in fact, so many that they can now be guaranteed in a pound or dozen of eggs if the vitamin content of the feed is known.

—Poultry Item, August-September, 1939.

## Today's Opportunity Lies in Produce of Super Quality

Most of us can remember the time when quality in farm produce seemed to be a matter of secondary importance. Quantity was the main consideration. An egg was an egg. A chicken was a chicken. A turkey was a turkey. A potato was a potato. We sold our stuff by the dozen, or the pound, or the bushel, and got paid accordingly.

But today, things are different. Consumers have learned the taste of more delicately flavored eggs, and juicier poultry meat, and finer-quality produce of all kinds. Those who can afford it (and perhaps even some who can't) are paying higher prices for top grade produce than it would cost them for similar articles of average quality.

Today's opportunity lies in that direction. Today, the enterprising man or woman may obtain a premium over regular market quotations, for almost any kind of farm produce, if he or she will produce an article of super quality. In some cases, the wholesale market will pay such a premium; in others, it is necessary to build up a group of special customers; but one way or the other, the opportunity is there to be grasped.

Quality production need not hamper quantity production. The two will go hand in hand, if the right program is mapped out and followed. In most instances, production of a quality article need add but little to the cost of production. Very largely, the extra price obtained may be extra profit—rich reward for the additional planning and care that are necessary.

—Checkerboard News, September, 1939, Published by Ralston Purina Company.

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## *The Supported Egg Market Collapses*

The break in the egg market this summer was one of the most severe in years and we were all disappointed when the price went down instead of going up, as it usually does this time of the year.

One reason for it is that every day the government was buying eggs to support the market. Because they kept the price higher than was warranted at the time, they defeated their purpose and created a situation that is alarming producers as well as distributors.

A practical person must see that any time a government, a group of individuals, or a syndicate of producers tries to hold the market of a perishable food product above the price that consumers will pay, there is trouble ahead.

The experience of the last few years indicates that when the government tries to support a price level above what it normally would be—whether it is corn, wheat, butter or eggs—the only effect is to create a larger surplus, making more of a supply that must be bought.

—Frank Priebe's Weekly Letter to Poultry Raisers, Sept. 2, 1939.

# POULTRY STATISTICS

## Hens on Farms — Rate of Lay

**Number of Hens Per Flock, and of Eggs Laid Per Hen and Per Flock, First Day of Month**

| Geographic Division | Layers per flock Jan. 1 | Layers per flock July 1 | Layers per flock Aug. 1 | Eggs per 100 layers July 1 | Eggs per 100 layers Aug. 1 | Eggs per 100 layers Aggregate Jan.-Aug. | Eggs per flock July 1 | Eggs per flock Aug. 1 | Eggs per flock Aggregate Jan.-Aug. |
|---|---|---|---|---|---|---|---|---|---|
| North Atl. | | | | | | | | | |
| 1928-37 (Av.) | 96.9 | 77.5 | 75.1 | 47.9 | 44.0 | 358 | 37.3 | 33.2 | 307 |
| 1938 | 96.7 | 77.0 | 74.7 | 51.1 | 45.7 | 391 | 39.6 | 34.4 | 338 |
| 1939 | 98.4 | 75.4 | 73.2 | 50.1 | 46.3 | 389 | 37.9 | 34.2 | 330 |
| North Cent. | | | | | | | | | |
| 1928-37 (Av.) | 115.7 | 89.8 | 84.2 | 42.9 | 36.3 | 311 | 38.7 | 30.9 | 318 |
| 1938 | 102.4 | 79.2 | 75.7 | 47.3 | 41.9 | 350 | 37.7 | 32.0 | 320 |
| 1939 | 110.4 | 84.7 | 79.5 | 47.0 | 40.5 | 347 | 40.0 | 32.4 | 338 |
| South Atl. | | | | | | | | | |
| 1928-37 (Av.) | 60.1 | 47.7 | 46.4 | 40.4 | 36.1 | 315 | 19.2 | 16.6 | 165 |
| 1938 | 55.8 | 46.0 | 44.5 | 42.5 | 39.3 | 347 | 19.2 | 17.3 | 172 |
| 1939 | 59.9 | 45.9 | 44.0 | 42.4 | 38.8 | 345 | 19.1 | 16.8 | 157 |
| South Cent. | | | | | | | | | |
| 1928-37 (Av.) | 66.8 | 50.4 | 49.9 | 38.0 | 32.6 | 303 | 19.2 | 16.4 | 173 |
| 1938 | 59.3 | 47.6 | 46.3 | 42.0 | 36.3 | 336 | 19.9 | 16.8 | 178 |
| 1939 | 63.6 | 50.8 | 49.0 | 40.7 | 35.1 | 330 | 20.6 | 17.2 | 186 |
| Western | | | | | | | | | |
| 1928-37 (Av.) | 74.0 | 60.8 | 60.1 | 48.6 | 43.7 | 360 | 29.7 | 26.5 | 238 |
| 1938 | 71.1 | 59.6 | 57.5 | 49.9 | 44.3 | 372 | 29.8 | 26.0 | 240 |
| 1939 | 72.6 | 57.7 | 56.6 | 48.4 | 44.7 | 373 | 28.1 | 25.5 | 238 |
| United States | | | | | | | | | |
| 1928-37 (Av.) | 86.0 | 66.8 | 64.2 | 42.8 | 37.1 | 319 | 28.3 | 23.6 | 238 |
| 1938 | 77.6 | 61.6 | 59.3 | 46.5 | 41.2 | 354 | 28.2 | 24.2 | 244 |
| 1939 | 82.8 | 64.3 | 61.3 | 45.9 | 40.4 | 350 | 29.0 | 24.4 | 252 |

While the farm laying flock on August 1 was reported to be only about 3 per cent larger than a year ago, the number of pullets not yet of laying age, the potential layers of tomorrow, was reported to be over 6 per cent larger than a year ago. Egg production continues high and the total production for the year, as indicated by the monthly layings from January to August, is about 4 per cent greater than for the same months of last year and the largest production since the record began in 1925 with the exception of the record high during 1927.

The seasonal decline in the number of hens and pullets of laying age in farm flocks this year has been slightly more than average. The average number of layers on August 1 was 61.3 compared with 59.3 a year ago and the 10-year (1928-37) average of 64.2. Compared with a year ago increases were shown in the North Central and the South Central States while decreases were shown in all other geographic areas. In the West North Central States the increase was about 9 per cent, in the South Central States about 6 per cent, and in the East North Central States about 1 per cent. In the North Atlantic and Western States the decrease was about 2 per cent and in the South Atlantic States about 1 per cent.

Although the rate of laying on August 1 was about 2 per cent below the record of a year ago, it equaled the high rate of 1937 and exceeded the August 1 figure of all other years in the 15-year series, and was about 9 per cent above the 10-year (1928-37) August 1 average.

The average number of eggs laid on August 1 per 100 layers in farm flocks was 40.4 compared with 41.2 a year ago and the 10-year average of 37.1. The aggregate laying per 100 layers indicated by the 8 monthly layings, January to August, is about 1 per cent smaller than for the same months in 1938, but it is about 10 per cent above the 10-year average, and the largest of record with the exception of last year.

Egg production on August 1 as indicated by the average production per farm flock was about 1 per cent larger than the production of a year ago and about 3 per cent above the 10-year (1928-37) average. The aggregate production of eggs indicated by the 8 monthly returns, January to August, is about 4 per cent greater than the aggregate for the same months of last year, about 6 per cent above the 10-year aggregate and is the largest aggregate since the record began in 1925 with the exception of the aggregate in 1927. Compared with a year ago there was an increase of about 4 per cent in the West North Central States and about 2 per cent in the South Central States. The decreases were about 3 per cent in the South Atlantic States, about 2 per cent in the Western States and about 1 per cent in the North Atlantic and East North Central States. Egg production was above the 10-year average in all geographic areas except in the Western States which was about 4 per cent below.

—Comment from Poultry and Egg Production Report.

## Poultry Meat Prices

**Farm Prices of Chickens per Pound**

(Figures given in cents)

| Year | Jan. 15 | Apr. 15 | May 15 | June 15 | July 15 | Aug. 15 | Sept. 15 | Oct. 15 | Nov. 15 |
|---|---|---|---|---|---|---|---|---|---|
| Average 1928-37 | 15.1 | 16.4 | 16.3 | 16.1 | 15.8 | 15.7 | 16.0 | 15.4 | 14.9 |
| 1937 | 13.4 | 15.2 | 14.8 | 14.8 | 15.3 | 16.8 | 17.4 | 17.6 | 16.9 |
| 1938 | 16.7 | 16.2 | 16.1 | 15.7 | 15.0 | 14.2 | 14.3 | 13.6 | 13.6 |
| 1939 | 14.0 | 14.4 | 13.9 | 13.4 | 13.7 | 13.0 | | | |

## Egg Prices

**1939 Egg Prices at New York City**

| Kind | Aug. 4 | Aug. 11 | Aug. 18 | Aug. 25 | Aug. 25, '38 |
|---|---|---|---|---|---|
| Mixed Color Firsts | 16¼ | 16¼ | 16 -16¼ | 16¼-16½ | 21¾-22 |
| Nearby and Midwestern White Premium Marks | 24½-27 | 26 -28½ | 25 -27½ | 27½-30 | 34½-37 |
| Nearby and Midwestern White Specials | 24 | 25 -25½ | 23½-24½ | 26 -27 | 28½-34 |
| Pacific Coast Specials | 28 -29½ | 27¼-29½ | 27½-29½ | 29½-32¾ | 35½-36 |
| Nearby and Western Brown Exchange Specials | 22½-23 | 22½-23 | 22½-23 | 23½-24 | 31 |

### Farm Prices of Eggs per Dozen

| Year | Jan. 15 | Mar. 15 | May 15 | June 15 | July 15 | Aug. 15 | Sept. 15 | Oct. 15 | Nov. 15 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | (Figures given in cents) | | | | | |
| Average 1928-37 | 25.9 | 18.0 | 17.5 | 17.4 | 18.7 | 20.6 | 23.9 | 27.0 | 31.1 |
| 1937 | 23.1 | 19.9 | 17.9 | 17.6 | 19.4 | 20.4 | 22.9 | 25.2 | 28.0 |
| 1938 | 21.6 | 16.2 | 17.6 | 18.2 | 19.9 | 21.0 | 24.9 | 27.1 | 29.0 |
| 1939 | 18.6 | 16.0 | 15.2 | 14.9 | 16.5 | 17.5 | | | |

## Receipts of Eggs and Poultry

The unsettled tone which featured egg markets during much of August gave way to a somewhat steadier feeling toward the end of the month, according to Agricultural Marketing Service reporters. Among the more important conditions which influenced market sentiment were the operations of the Federal Surplus Commodities Corporation, the break in futures prices at Chicago, relatively heavy current arrivals at terminal markets, and developments in connection with this season's storage operations.

The situation in egg markets during the early part of July was such as to cause the Federal Surplus Commodities Corporation to inaugurate an active buying program. This got under way just before the middle of the month, but by August 1, purchases of 46,800 cases had been made, about 60 per cent of these being at Chicago and the balance at New York. The heavier purchases at Chicago were apparently the result of less confident feeling in that market. Since August 1, purchases have been made on an even larger scale than in July. A total of 80,584 cases were bought from August 1 to August 29, and buying was about equally divided between the two markets. Total purchases by the Federal Surplus Commodities Corporation since the buying program was inaugurated last month amount to 127,413 cases.

Receipts of eggs at terminal markets since August 1 represent an increase of about 9 per cent over the corresponding period last year. In July, the increase was 12 per cent. Most of the increases are from the West North Central States, but the Northeastern States are sending more eggs to market than a year ago. Shipments from the West Coast are very much lighter than in 1938, and for the calendar year to August 1, show a reduction of 56 per cent. Receipts of eggs at country packing plants in the Pacific Coast States throughout the current year, have been less than in 1938. The percentage reductions, however, are now less than they were during earlier periods of the year. At packing plants in the Central Western States, there was a tendency early in the month for receipts to drop below those of a year earlier, but the report for the week which ended August 19 showed an increase of over 9 per cent.

### Receipts of Eggs (Cases) at 4 Markets*

| Geographic sections | July 1939 | July 1938 | % change | Jan. to July, Inc. 1939 | Jan. to July, Inc. 1938 | % change |
|---|---|---|---|---|---|---|
| New England | 18,365 | 14,100 | + 30.25 | 231,067 | 182,987 | + 26.28 |
| Middle Atlantic | 134,784 | 120,574 | + 11.79 | 1,336,623 | 1,126,364 | + 18.67 |
| South Atlantic | 15,369 | 17,206 | – 10.68 | 209,712 | 197,166 | + 6.36 |
| East North Central | 183,872 | 183,716 | + 0.08 | 2,145,961 | 2,023,420 | + 6.06 |
| West North Central | 664,637 | 553,991 | + 19.97 | 5,914,716 | 5,090,122 | + 16.20 |
| South Central | 981 | 2,107 | – 53.44 | 53,690 | 92,621 | – 42.03 |
| Mountain | 26,009 | 29,685 | – 12.38 | 186,280 | 316,191 | – 41.09 |
| Pacific | 44,097 | 46,894 | – 5.97 | 180,786 | 416,604 | – 56.61 |
| Miscellaneous | 323 | 388 | – 16.75 | 3,557 | 3,816 | – 6.79 |
| TOTAL | 1,088,437 | 968,661 | + 12.37 | 10,262,392 | 9,449,291 | + 8.60 |

### Receipts of Dressed Poultry (pounds) at 4 Markets*

| Geographic sections | July 1939 | July 1938 | % change | Jan. to July, Inc. 1939 | Jan. to July, Inc. 1938 | % change |
|---|---|---|---|---|---|---|
| New England | 1,991,817 | 1,787,108 | + 11.45 | 8,214,147 | 6,934,044 | + 18.46 |
| Middle Atlantic | 7,123,703 | 6,483,131 | + 9.88 | 24,349,846 | 21,245,803 | + 14.61 |
| South Atlantic | 1,590,097 | 594,157 | +167.62 | 10,311,124 | 4,296,024 | +140.02 |
| East North Central | 3,147,381 | 2,390,116 | + 31.68 | 21,823,127 | 13,748,144 | + 58.74 |
| West North Central | 11,784,490 | 9,787,277 | + 20.41 | 64,850,850 | 49,790,232 | + 30.25 |
| South Central | 786,578 | 1,216,850 | – 35.36 | 12,484,247 | 13,797,282 | – 9.52 |
| Mountain | 406,121 | 195,690 | +107.53 | 2,376,617 | 1,504,747 | + 57.94 |
| Pacific | 501,661 | 125,637 | +299.29 | 4,820,293 | 6,195,534 | – 22.20 |
| Miscellaneous | 34,117 | — | — | 34,117 | — | — |
| TOTAL | 27,365,965 | 22,579,966 | + 21.20 | 149,264,368 | 117,511,810 | + 27.02 |

* New York, Chicago, Philadelphia, and Boston.

### Receipts of Eggs and Poultry at Central Western Primary Markets

| Week Ending | Cases of Eggs 1939 | Cases of Eggs 1938 | % Chg. | Pounds of Poultry (000 omitted) 1939 | 1938 | % Chg. | Pounds of Young Stock (000 omitted) 1939 | 1938 | % Chg. | Pounds of Fowl (000 omitted) 1939 | 1938 | % Chg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aug. 5 | 74,498 | 77,011 | –3.26 | 3,339 | 3,432 | –2.70 | 1,515 | 1,917 | –20.96 | 1,697 | 1,402 | +21.06 |
| Aug. 12 | 72,787 | 73,733 | –1.28 | 2,852 | 3,093 | –7.78 | 1,408 | 1,776 | –20.71 | 1,345 | 1,221 | +10.13 |
| Aug. 19 | 73,519 | 67,052 | +9.64 | 3,271 | 3,126 | +4.64 | 1,855 | 1,737 | + 6.83 | 1,325 | 1,259 | + 5.26 |
| Aug. 26 | 61,336 | 56,849 | +7.89 | 3.742 | 3.506 | +6.73 | 2,225 | 2,113 | + 5.32 | 1,428 | 1,295 | +10.27 |

### Receipts of Eggs at Eastern Egg Auctions

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| August 5 | 24 | 21,269 | +2.98 | +28.43 |
| August 12 | 25 | 23,524 | +5.26 | +35.98 |
| August 19 | 28 | 24,170 | –0.13 | +36.62 |
| August 26 | 29 | 26,286 | +3.25 | +38.16 |

### Receipts of Eggs at Pacific Coast Primary Markets

| Week Ending | No. of Plants | Cases of Eggs 1939 | Cases of Eggs 1938 | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| August 5 | 62 | 51,519 | 54,137 | –1.37 | –4.84 |
| August 12 | 61 | 53,068 | 54,808 | +2.98 | –3.17 |
| August 19 | 61 | 53,583 | 54,471 | +1.16 | –1.63 |
| August 26 | 60 | 54,411 | 55,968 | +1.72 | –2.78 |

Live poultry markets have been barely steady this month, with weakness at times on some classes. Demand has varied in different markets. While lighter weights have sold best, in general fancy quality in heavier classes has moved fairly well. Ordinary quality has been hard to sell, and the market on medium to undergrade poultry has been in the buyers' favor. Prices continue below last year.

Receipts of dressed poultry at terminal markets in July were 21 per cent greater than in July 1938. All sections shared in the increase except some of the South Central States. Although receipts during July at the 4 markets from the Pacific Coast were only half a million pounds out of a total of 27 million pounds, this represented an increase of 300 per cent over a year earlier. June receipts from the same area were more than 100 per cent greater than in 1938. Storage stocks of frozen poultry on July 1 were 65 million pounds, compared with 52½ million pounds a year previous, and a July 1 average during 1934-38 of 51½ million pounds. Frozen poultry stocks in the 35 cities decreased about 4 per cent between August 1 and August 26, whereas the August change in 1938 was an increase, as was also the average of the past 5 years. Thus, it appears likely that the September 1 storage report will show a considerably closer relationship to the previous year's comparative total than existed on August 1. The increase on August 1 was 12½ million pounds, while the September 1 increase will be only about 8½ million pounds.
—Comment from Monthly Egg and Poultry Markets Review.

## Eggs in Storage

### Storage Holdings of Eggs

| Kind | Aug. 1 5-Year Avg. 1934-38 | Aug. 1 1938 | July 1 1939 | Aug. 1 1939 | % Change Aug. '38-Aug. '39 |
|---|---|---|---|---|---|
| | | (Thousands) | | | |
| Shell Eggs (cases) | 7,874 | 6,411 | 6,977 | 7,017 | +9.4 |
| Frozen Eggs (lbs.) | 131,106 | 135,329 | 141,456 | 143,021 | +5.6 |
| Frozen Case Equivalent (cases)* | 3,746 | 3,867 | 4,042 | 4,086 | +5.6 |
| Total (cases) | 11,620 | 10,278 | 11,019 | 11,103 | +8.0 |

Storage stocks of shell eggs on August 1 were 7,017,000 cases, compared with 6,411,000 cases on August 1, 1938, and a 5-year average (1934-38) of 7,874,000 cases. Combined with frozen eggs, the total case equivalents were 11,103,000 cases this year, compared with 10,278,000 cases last year, and a 5-year average of 11,620,000 cases.

## Poultry in Storage

### Storage Holdings of Frozen Poultry

| Kind | Aug. 1 5-Year Avg. 1934-38 | Aug. 1 1938 | July 1 1939 | Aug. 1 1939 | % Change Aug. '38-Aug. '39 |
|---|---|---|---|---|---|
| | | (Thousand Pounds) | | | |
| Broilers | 6,614 | 6,553 | 6,722 | 7,474 | +14.0 |
| Fryers | 1,975 | 2,039 | 3,395 | 2,468 | +21.0 |
| Roasters | 5,199 | 5,449 | 7,821 | 6,449 | +18.3 |
| Fowls | 9,579 | 9,039 | 13,683 | 12,591 | +39.2 |
| Turkeys | 10,870 | 8,633 | 17,373 | 14,210 | +64.6 |
| Ducks | 5,642 | 9,196 | 4,931 | 7,847 | –14.6 |
| Miscellaneous | 11,734 | 11,731 | 13,545 | 14,099 | +20.1 |
| Total | 51,613 | 52,640 | 67,470 | 65,138 | +23.7 |

## Egg-Feed Ratios

### New York Egg-Feed Ratio

| Week Ending | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration | | | Avg. Egg Price per Doz. (Dollars) | | | Avg. Feed Cost per 100 lbs. (Dollars) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1939 | 1938 | 1937 | 1939 | 1938 | 1937 | 1939 | 1938 | 1937 |
| August 3 | 6.8 | 6.1 | 8.8 | .241 | .275 | .261 | 1.62 | 1.68 | 2.29 |
| August 10 | 6.8 | 5.3 | 8.4 | .238 | .294 | .273 | 1.62 | 1.56 | 2.30 |
| August 17 | 7.0 | 5.0 | 8.0 | .239 | .309 | .286 | 1.68 | 1.55 | 2.30 |
| August 24 | 7.0 | 4.9 | 7.5 | .239 | .316 | .298 | 1.68 | 1.55 | 2.22 |
| August 31 | 6.5 | 4.5 | 7.1 | .256 | .346 | .309 | 1.67 | 1.54 | 2.20 |

### Chicago Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration | | | Price of Fresh Graded Firsts (Dollars) | | Cost of Ration per 100 lbs. (Dollars) | |
|---|---|---|---|---|---|---|---|
| | 1939 | 1938 | 10-Yr. Av. 1929-38 | 1939 | 1938 | 1939 | 1938 |
| August 5 | 5.85 | 4.82 | 6.50 | .152 | .208 | .893 | 1.005 |
| August 12 | 6.05 | 4.78 | 6.62 | .152 | .205 | .922 | .983 |
| August 19 | 6.15 | 4.87 | 6.41 | .151 | .207 | .933 | 1.011 |
| August 26 | 6.33 | 4.57 | 6.11 | .151 | .219 | .960 | 1.000 |

## Hatchery Operations

### Eggs Set, Chicks Hatched, and Chicks Booked by Commercial Hatcheries

| Geographic Section | No. of Plants | Eggs Set During July | | | Salable Chicks Hatched During July | | | Chicks Booked Aug. 1 for Aug. or Later Delivery | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1939 | 1938 | % chg. | 1939 | 1938 | % chg. | No. of Plants | 1939 | 1938 | % chg. |
| | | Thousands | | | Thousands | | | | Thousands | | |
| N. Eng. | 7 | 1,679 | 849 | + 98 | 947 | 734 | + 29 | 5 | 1,735 | 1,724 | + 1 |
| Mid. Atl. | 13 | 431 | 303 | + 42 | 203 | 280 | – 28 | 9 | 209 | 166 | + 26 |
| S. Atl. | 16 | 421 | 268 | + 57 | 318 | 233 | + 36 | 7 | 299 | 119 | +151 |
| E. N. Cent. | 38 | 512 | 588 | – 13 | 509 | 625 | – 19 | 18 | 187 | 123 | + 52 |
| W. N. Cent. | 15 | 430 | 241 | + 78 | 496 | 363 | + 37 | 6 | 58 | 80 | – 28 |
| S. Cent. | 6 | 62 | 21 | +195 | 125 | 10 | +1150 | 3 | 39 | 0 | — |
| Mountain | 3 | 9 | 43 | – 79 | 8 | 79 | – 90 | 2 | 24 | 17 | + 41 |
| Pacific | 29 | 873 | 862 | + 1 | 591 | 543 | + 9 | 23 | 683 | 787 | – 13 |
| U. S. | 127 | 4,417 | 3,175 | + 39 | 3,197 | 2,867 | + 12 | 73 | 3,234 | 3,016 | + 7 |
| Jan.-July Inc. | | 158,297 | 134,097 | + 17 | 107,964 | 89,283 | + 21 | | 79,624 | 65,826 | + 21 |

Production of baby chicks by commercial hatcheries during the 7 months from January to July 1939 apparently has set a new all-time record. A summary of the data obtained by the Agricultural Marketing Service for each of these months points to an increase of 21 per cent over the corresponding 7 months of last year. The indicated production for 1939 is also 47 per cent larger than the average production for the years 1933-37, and 19 per cent greater than the previous high record of output for January to July in 1936.

The increased production represents in part an increase in the number of hatchery chicks bought by producers for replacement and expansion purposes. It also represents, however, a continuation of the shift from home hatchings to commercial hatchings. This shift, which began immediately after commercial hatchery operations first started, has since grown steadily. While there is evidence that the rate of that shift is slowing down, there is nothing to indicate that a further increase may not be expected in the proportion of chicks hatched commercially.

The increased production over last year, on a percentage basis, was fairly uniform by principal geographic divisions. The smallest increase, 17 per cent, was reported for the New England and the East North Central States, while the largest increase, 36 per cent, was reported for the Pacific Coast States. The increase on the Coast already has been reflected in a marked expansion in the number of young stock in the commercial flocks of that area according to reports to the Agricultural Marketing Service from its crop correspondents. The big increase in this area also represents an adjustment to the situation that developed in 1938 when the number of baby chicks hatched in the Pacific Coast States was 12 per cent less than in 1937, while the rest of the country showed a substantial increase.

An increase of 20 per cent over last year was reported for the West North Central States and 18 per cent for both the South Central States and the Mountain States. In the regions along the Atlantic Seaboard an increase of 19 per cent is shown for the Middle Atlantic States, and 23 per cent for the South Atlantic States.

Average utilization of the capacity of plants reporting during 1939 season was 34 per cent compared with an average of 30 per cent in 1938. The 1939 average is the highest for any year since 1936 when it equalled 37 per cent. The capacity of the hatchery industry in 1939, however, appears to be substantially larger than that of 1936. From the data available, it is judged that the increase in capacity from 1936 to 1939 was approximately 17 per cent.

In looking back over the season just closing it will probably be considered as one of the most successful that the hatchery industry has ever experienced. With a record output, a good demand, and only isolated instances of surplus supplies that led to some price cutting at widely scattered points, hatcheries in most cases report a rather favorable season.

Despite general expectations of a sharp let down in hatchery operations toward the close of the season, based chiefly upon the high operating level of the first 5 months, the output of hatchery chicks in July was substantially larger than that of a year earlier. Although most of the hatcheries had closed for the season by the end of June, a sample of 127 plants still operating indicated an increase over July of last year of 39 per cent in the number of eggs set and 12 per cent in the number of chicks hatched. Also, approximately 7 per cent more chicks were booked on August 1 for August or later delivery than were booked on the same date last year.

In addition to a record high year in the production of baby chicks, the hatchery industry also produced more turkey poults than has ever been produced since poults began to be hatched commercially. A summary for the season of the operation of 182 plants points to increase over 1938 of 52 per cent in the number of hatchery poults produced. These plants reported a total of 4,351,000 poults hatched this year compared with 2,858,000 poults a year earlier.

—Comment from Hatchery Report.

# Egg and Poultry Exports and Imports

### Exports of Eggs and Poultry

| Commodity | | July 1939 | July 1938 | Jan. to July, Inc. 1939 | Jan. to July, Inc. 1938 |
|---|---|---|---|---|---|
| Eggs in shell | (doz.) | 167,188 | 178,539 | 1,437,815 | 1,304,018 |
| Eggs and yolks, frozen, dried, or canned | (lbs.) | Not available | Not available | Not available | Not available |
| Live poultry | (lbs.) | 9,558 | 4,811 | 123,186 | 49,653 |
| Dressed poultry | (lbs.) | 249,223 | 143,545 | 1,413,112 | 922,588 |

### Imports of Eggs and Poultry

| Commodity | | July 1939 | July 1938 | Jan. to July, Inc. 1939 | Jan. to July, Inc. 1938 |
|---|---|---|---|---|---|
| Eggs in shell | (doz.) | 14,202 | 17,187 | 183,437 | 127,241 |
| Whole eggs, dried | (lbs.) | 3,500 | 2,500 | 35,500 | 125,550 |
| Whole eggs, frozen | (lbs.) | 0 | 0 | 420 | 938 |
| Yolks, dried | (lbs.) | 107,400 | 23,400 | 205,325 | 200,505 |
| Yolks, frozen | (lbs.) | 0 | 19,890 | 25,330 | 363,940 |
| Egg albumen, dried | (lbs.) | 28,300 | 7,000 | 328,283 | 329,774 |
| Egg albumen, frozen | (lbs.) | 0 | 0 | 0 | 30 |
| Live poultry | (lbs.) | 74,986 | 72,389 | 446,409 | 862,549 |
| Dressed Poultry | (lbs.) | 6,638 | 20,354 | 119,200 | 374,427 |
| Poultry, prepared | (lbs.) | 23,871 | 13,710 | 588,195 | 356,363 |

# Egg Breaking Operations

### Egg Breaking Operations During July, 1939

| Commodity | | Quantities reported to date for July 1939 | Same firm comparison July 1939 | Same firm comparison July 1938 | Same firm comparison % change in 1939 |
|---|---|---|---|---|---|
| | | Pounds | Pounds | Pounds | |
| Whole eggs (nothing added) | | 5,119,649 | 5,055,914 | 2,480,110 | +104 |
| Mixed eggs (plain) | | 1,003,077 | 986,639 | 359,911 | +174 |
| Mixed eggs (emulsions, also with sugar, salt, etc.) | | 434,340 | 426,060 | 341,100 | + 25 |
| Egg whites (all descriptions) | | 2,493,197 | 2,146,890 | 1,602,279 | + 34 |
| Egg yolks packed | Without salt, sugar, etc. | 907,094 | 660,248 | 547,234 | + 21 |
| | With sugar | 1,099,069 | 1,051,050 | 558,230 | + 88 |
| | With salt | 432,808 | 432,808 | 426,144 | + 2 |
| | All yolk emulsions, including glycerine | 0 | 0 | 0 | 0 |
| Total—pounds | | 11,489,234 | 10,759,609 | 6,315,008 | + 70 |
| Total—case egg equivalent | | 328,264 | 307,417 | 180,429 | |
| Number of firms reporting | | 57 | 55 | 55 | |

# Poultry Canning Operations

### Poultry Canning Operations During July, 1939

| Commodity | Quantities reported to date for July 1939 | Quantities reported for June 1939 | Same Firm Comparison July 1939 | Same Firm Comparison July 1938 | Same Firm Comparison % change in 1939 |
|---|---|---|---|---|---|
| | Pounds | Pounds | Pounds | Pounds | |
| Dressed poultry canned or used in canning | 4,189,289 | 4,579,132 | 4,189,289 | 3,490,738 | +20 |
| Number of firms reporting | 17 | 19 | 17 | 17 | |

# RESULTS OF LAYING TESTS

Kauder's Leghorns are still riding high at the head of all other standard test pens on August 1, with just seven weeks more to go before the curtain comes down on the 1938-39 test year. Mettler's Reds at Hunterdon continue to swing along in second position, with Ford's Reds at Maine dropping back a little further in third place, but still holding a distinct advantage over Leader's fourth place pen. Sand Springs' Leghorns at Texas, in fifth place, are threatening to do damage before the year is over, and the next few pens along the line also are closing in on the leaders.

Dryden's Leghorns at Michigan advanced another notch, annexing sixth position. Close behind are Kauder's Leghorns at Georgia, with Larrabee's New Hampshires tramping on their heels. John A. Clear's Leghorns at Hunterdon, N. J., and W. C. Mullin's Reds at Texas compose the ninth and tenth highest pens in this "court of honor."

For the second time in succession, Schwegler's Leghorns at Western New York romped off with highest honors for the month. Hens at three different tests obtained highest possible scores during July, with 31 eggs and 34.10 points apiece.

A. E. Guinn's White Leghorn at Georgia still wears the blue ribbon for champion individual to date, but she had better look to her laurels, or Kauder's Leghorn at Storrs will scamper off with the crown for highest hen in the 1938-39 laying test year.

High pen in each breed on August 1 was the same as on July 1 except in the Buff Orpingtons, where Laclede Hatchery's pen at Florida displaced Iowa Master Breeders' pen at Missouri. Texas has the highest average number of points per bird through the 304 days.

## Twenty Highest Pens, All Breeds, to August 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 3218 | 3472.45 | Storrs |
| Thomas Mettler | Rhode Island Red | 3315 | 3381.35 | Hunterdon, N. J. |
| Ford's Riverbank Farm | Rhode Island Red | 3186 | 3228.80 | Maine |
| Guy A. Leader | White Leghorn | 3059 | 3163.75 | Pennsylvania |
| Sand Springs Home Farm | White Leghorn | 2985 | 3154.60 | Texas |
| Dryden Poultry Breeding Farm | White Leghorn | 3002 | 3142.65 | Michigan |
| Kauder's Pedigreed Leghorns | White Leghorn | 2961 | 3133.90 | Georgia |
| Edward N. Larrabee | N. Hamp. | 2968 | 3127.45 | Storrs |
| John A. Clear | White Leghorn | 2934 | 3122.65 | Hunterdon, N. J. |
| W. C. Mullins | R. I.R. | 2912 | 3098.60 | Texas |
| J. J. Warren | Rhode Island Red | 2920 | 3091.50 | Storrs |
| Kauder's Pedigreed Leghorns | White Leghorn | 2927 | 3069.40 | Georgia |
| Woodlawn Farm | White Leghorn | 2865 | 3063.70 | Texas |
| Bryan J. Snell | White Leghorn | 2824 | 3054.45 | Pennsylvania |
| Nelson's Leghorn Breeding Farm | White Leg. | 2856 | 3043.25 | Texas |
| Woodlawn Farm | White Leghorn | 2908 | 3035.80 | Texas |
| Booth Farms and Hatchery | White Leghorn | 2812 | 3024.70 | Oklahoma |
| J. J. Warren | Rhode Island Red | 2816 | 3018.75 | Rhode Island |
| R. O. Wagemaker | Rhode Island Red | 2794 | 3015.70 | Missouri |
| Donald L. Crooks | Rhode Island Red | 2842 | 3005.35 | Storrs |

## High Pen in Each Standard Test for July

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Schwegler's Hatchery | White Leghorn | 333 | 351.35 | Western New York |
| Edward N. Larrabee | New Hampshire | 325 | 344.45 | Storrs |
| Dryden Poultry Breeding Farm | White Leghorn | 314 | 334.40 | Central New York |
| Thomas Mettler | Rhode Island Red | 321 | 333.75 | Hunterdon, N. J. |
| Kauder's Pedigreed Leghorns | White Leghorn | 303 | 328.90 | Georgia |
| Dryden Poultry Breeding Farm | White Leghorn | 310 | 328.20 | Michigan |
| Dryden Poultry Breeding Farm | Barred Rock | 316 | 318.15 | Pennsylvania |
| Miami Chick Hatchery | White Leghorn | 309 | 316.95 | New York State |
| W. C. Mullins | Rhode Island Red | 304 | 311.00 | Texas |
| Hillview Poultry Farm | White Leghorn | 290 | 306.85 | Missouri |
| Sebold Poultry Farm | White Leghorn | 295 | 297.05 | Passaic, N. J. |
| Ford's Riverbank Farm | Rhode Island Red | 280 | 292.45 | Maine |
| Norman W. Amidon | Rhode Island Red | 260 | 283.85 | Rhode Island |
| Lone Oak Leghorn Farm | White Leghorn | 280 | 283.55 | Florida |
| Booth Farms and Hatchery | White Leghorn | 252 | 273.10 | Oklahoma |
| Nelson's Leghorn Breeding Farm | White Leg. | 256 | 258.05 | Arizona |

## High Pen in Each Breed to August 1—(304 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 3218 | 3472.45 | Storrs |
| Thomas Mettler | Rhode Island Red | 3315 | 3381.35 | Hunterdon, N. J. |
| Edward N. Larrabee | New Hampshire | 2968 | 3127.45 | Storrs |
| Dryden Poultry Breeding Farm | Barred Rock | 2953 | 2963.65 | Pennsylvania |
| Lonnie Van Sant | Black Australorp | 2549 | 2694.90 | Arizona |
| Oscar W. Holtzapple | White Rock | 2571 | 2652.00 | Georgia |
| Colonial Poultry Farm | White Wyandotte | 2423 | 2544.45 | Texas |
| Ben G. Monroe | Ancona | 2319 | 2375.20 | Texas |
| Harry L. Phillips | Columbian Rock | 2023 | 2122.90 | Missouri |
| Colonial Poultry Farm | White Minorca | 1959 | 2061.60 | Georgia |
| Highland Poultry Farm | White Giant | 1865 | 2027.00 | Rhode Island |
| S. E. Raymond | Lamona | 1874 | 1995.55 | Storrs |
| Lindstrom Poultry Farm | Buff Minorca | 1875 | 1911.45 | Missouri |
| Donald C. Chandler | Silver Laced Wyandotte | 1907 | 1903.05 | Maine |
| Wm. W. Lehman | Buff Leghorn | 1860 | 1874.90 | Pennsylvania |
| Hall Bros. Hatchery | Cross | 1573 | 1637.55 | New York State |
| Cedarlaid Poultry Farm | Brown Leghorn | 1841 | 1620.35 | Florida |
| Laclede Hatchery | Buff Orpington | 1609 | 1581.75 | Florida |
| Blue Ribbon Farms | Rhode Island White | 1533 | 1557.70 | Texas |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 1315 | 1387.55 | Maine |

## High Pen in Each Standard Test to August 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 3218 | 3472.45 | Storrs |
| Thomas Mettler | Rhode Island Red | 3315 | 3381.35 | Hunterdon, N. J. |
| Ford's Riverbank Farm | Rhode Island Red | 3186 | 3228.80 | Maine |
| Guy A. Leader | White Leghorn | 3059 | 3163.75 | Pennsylvania |
| Sand Springs Home Farm | White Leghorn | 2985 | 3154.60 | Texas |
| Dryden Poultry Breeding Farm | White Leghorn | 3002 | 3142.65 | Michigan |
| Kauder's Pedigreed Leghorns | White Leghorn | 2961 | 3133.90 | Georgia |
| Booth Farms & Hatchery | White Leghorn | 2812 | 3024.70 | Oklahoma |
| J. J. Warren | Rhode Island Red | 2816 | 3018.75 | Rhode Island |
| R. O. Wagemaker | Rhode Island Red | 2794 | 3015.70 | Missouri |
| Vans R. Otey | Rhode Island Red | 2862 | 2980.80 | Florida |
| Content Farms | White Leghorn | 2853 | 2950.65 | Central New York |
| George A. Pearce | Rhode Island Red | 2853 | 2875.50 | Passaic, N. J. |
| J. J. Warren | Rhode Island Red | 2722 | 2834.35 | New York State |
| E. B. Parmenter | Rhode Island Red | 2718 | 2821.90 | Western New York |
| Nelson's Leghorn Breeding Farm | White Leg. | 2717 | 2757.75 | Arizona |

## High Hen in Each Standard Test for July

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| J. A. Hanson | White Leghorn | 31 | 34.10 | Central New York |
| Thomas Mettler | Rhode Island Red | 31 | 34.10 | Passaic, N. J. |
| S. J. Drellishak | White Leghorn | 31 | 34.10 | Hunterdon, N. J. |
| Dryden Poultry Breeding Farm | White Leghorn | 31 | 33.60 | Western New York |
| Kauder's Pedigreed Leghorns | White Leghorn | 30 | 33.00 | Storrs |
| Lindstrom Poultry Farm | Barred Rock | 30 | 32.95 | Missouri |
| J. A. Hanson | White Leghorn | 30 | 32.95 | Pennsylvania |
| LaMaster Brothers | Rhode Island Red | 30 | 32.75 | Michigan |
| C. E. Coleman, Jr. | Rhode Island Red | 30 | 32.55 | Maine |
| Colonial Poultry Farm | Rhode Island Red | 30 | 32.45 | New York State |
| Northland Farm | White Leghorn | 30 | 32.30 | Georgia |
| Erath Egg Farm | White Leghorn | 31 | 32.20 | Texas |
| Northland Farm | White Leghorn | 29 | 31.90 | Oklahoma |
| Gulfkist Poultry Farm | White Leghorn | 28 | 30.70 | Florida |
| J. A. Hanson | White Leghorn | 28 | 30.55 | Rhode Island |
| W. A. Seidel | White Leghorn | 27 | 28.45 | Arizona |

## High Hen in Each Breed to August 1—(304 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| A. E. Guinn | White Leghorn | 289 | 315.90 | Georgia |
| Ford's Riverbank Farm | Rhode Island Red | 284 | 302.20 | Maine |
| Weber Duck Farm | Barred Rock | 270 | 290.50 | Georgia |
| S. C. Houck | New Hampshire | 264 | 283.75 | Pennsylvania |
| E. S. McSweeny | Black Australorp | 266 | 283.30 | Arizona |
| Homestead Farm | White Rock | 252 | 273.95 | Storrs |
| Raymond Murphy | White Giant | 252 | 269.20 | Missouri |
| Lindstrom Poultry Farm | White Wyandotte | 243 | 265.70 | Georgia |
| Colonial Poultry Farm | White Minorca | 223 | 238.30 | Georgia |
| Eriksen's Ancona Yards | Ancona | 238 | 234.10 | Storrs |
| Donald C. Chandler | Silver Laced Wyandotte | 215 | 230.80 | Maine |
| S. E. Raymond | Lamona | 205 | 223.95 | Storrs |
| Harry L. Phillips | Columbian Rock | 203 | 221.30 | Missouri |
| Blue Ribbon Farms | Rhode Island White | 202 | 219.30 | Texas |
| Lindstrom Poultry Farm | Buff Minorca | 221 | 214.95 | Rhode Island |
| Laclede Hatchery | Buff Orpington | 218 | 213.25 | Florida |
| Hall Bros. Hatchery | Cross | 189 | 206.00 | New York State |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 185 | 199.85 | Maine |
| Cedarlaid Poultry Farm | Brown Leghorn | 204 | 193.00 | Florida |
| Wm. W. Lehman | Buff Leghorn | 193 | 191.75 | Pennsylvania |

## High Hen in Each Standard Test to August 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| A. E. Guinn | White Leghorn | 289 | 315.90 | Georgia |
| Kauder's Pedigreed Leghorns | White Leghorn | 285 | 311.85 | Storrs |
| Ford's Riverbank Farm | Rhode Island Red | 284 | 302.20 | Maine |
| Weber Duck Farm | Rhode Island Red | 273 | 298.60 | Michigan |
| Gulfkist Pl. Fm. | White Leghorn | 272 | 296.45 | Florida |
| J. J. Warren | Rhode Island Red | 272 | 294.30 | Rhode Island |
| I. Commer | White Leghorn | 273 | 292.05 | Texas |
| Foreman Poultry Farm | White Leghorn | 271 | 291.00 | Hunterdon, N. J. |
| C. T. Darby | White Leghorn | 276 | 289.30 | Passaic, N. J. |
| Henrich's Poultry Farm | White Leghorn | 265 | 286.60 | Missouri |
| Silver Brook Farm | White Leghorn | 261 | 285.85 | Pennsylvania |
| Stroehlein Bros. | White Leghorn | 260 | 284.05 | Western New York |
| E. S. McSweeny | Black Australorp | 266 | 283.30 | Arizona |
| Schwegler's Hatchery | White Leghorn | 273 | 282.00 | Central New York |
| J. J. Warren | Rhode Island Red | 254 | 277.60 | New York State |
| Rucker's Im. Breeding Farm | White Leghorn | 279 | 274.35 | Oklahoma |

## 20 Highest White Leghorn Pens in Country to August 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Kauder's Pedigreed Leghorns | 3218 | 3472.45 | Storrs |
| Guy A. Leader | 3059 | 3163.75 | Pennsylvania |
| Sand Springs Home Farm | 2985 | 3154.60 | Texas |
| Dryden Poultry Breeding Farm | 3002 | 3142.65 | Michigan |
| Kauder's Pedigreed Leghorns | 2961 | 3133.90 | Georgia |
| John A. Clear | 2934 | 3122.65 | Hunterdon, N. J. |
| Kauder's Pedigree Leghorns | 2927 | 3069.40 | Georgia |
| Woodlawn Farm | 2865 | 3063.70 | Texas |
| Bryan J. Snell | 2824 | 3054.45 | Pennsylvania |
| Nelson's Leghorn Breeding Farm | 2856 | 3043.25 | Texas |
| Woodlawn Farm | 2908 | 3035.80 | Texas |
| Booth Farms and Hatchery | 2812 | 3024.70 | Oklahoma |
| Guy A. Leader | 2839 | 2969.05 | Storrs |
| Tarleton Poultry Farm | 2784 | 2952.80 | Texas |
| Content Farms | 2853 | 2950.65 | Central New York |
| I. Commer | 2846 | 2944.75 | Texas |
| I. Commer | 2866 | 2943.25 | Texas |
| W. H. Kaltreider | 2921 | 2942.95 | Pennsylvania |
| Vandermast Farm | 2835 | 2938.55 | Pennsylvania |
| Dublin Poultry Farm | 2850 | 2938.00 | Georgia |

## 20 Highest Rhode Island Red Pens in Country to August 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Thomas Mettler | 3315 | 3381.35 | Hunterdon, N. J. |
| Ford's Riverbank Farm | 3186 | 3228.80 | Maine |
| W. C. Mullins | 2912 | 3098.60 | Texas |
| J. J. Warren | 2920 | 3091.50 | Storrs |
| J. J. Warren | 2816 | 3018.75 | Rhode Island |
| R. O. Wagemaker | 2794 | 3015.70 | Missouri |
| Donald L. Crooks | 2842 | 3005.35 | Storrs |
| Donald I. Goodenough | 2806 | 2994.95 | Storrs |
| Ralph W. Anderson | 2774 | 2983.75 | Storrs |
| Vans R. Otey | 2862 | 2980.80 | Florida |
| E. B. Parmenter | 2837 | 2944.80 | Florida |
| Ford's Riverbank Farm | 2859 | 2920.40 | Michigan |
| Wene Chick Farms | 2806 | 2912.25 | Storrs |
| R. E. and F. H. Kendrick | 2722 | 2899.30 | Rhode Island |
| J. J. Warren | 2687 | 2899.10 | Storrs |
| A. S. Pendleton | 2786 | 2891.25 | Storrs |
| George A. Pearce | 2853 | 2875.50 | Passaic, N. J. |
| Thomas Mettler | 2742 | 2859.60 | Pennsylvania |
| George A. Pearce | 2815 | 2855.20 | Hunterdon, N. J. |
| J. J. Warren | 2685 | 2854.15 | Pennsylvania |

## 20 Highest New Hampshire Pens in Country to August 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Edward N. Larrabee | 2968 | 3127.45 | Storrs |
| Hubbard Farms | 2860 | 2968.85 | Storrs |
| A. J. Williams | 2826 | 2888.25 | Florida |
| Fuzzydele Farms | 2540 | 2742.30 | Pennsylvania |
| Steelman Poultry Farms | 2603 | 2741.80 | Storrs |
| Del Rio Farm | 2575 | 2730.90 | Arizona |
| W. H. Boulware | 2616 | 2714.75 | Florida |
| A. J. Williams | 2593 | 2700.65 | Florida |
| Thomas J. Harrold | 2641 | 2662.00 | Georgia |
| Fuzzydele Farms | 2532 | 2629.55 | Western New York |
| Goodwin's Poultry Farm | 2530 | 2627.80 | Storrs |
| W. H. Boulware | 2582 | 2626.60 | Georgia |
| S. C. Houck | 2491 | 2592.70 | Pennsylvania |
| Eben Wood | 2478 | 2586.25 | Pennsylvania |
| H. S. and M. E. Twichell | 2494 | 2561.80 | Western New York |
| Eben Wood | 2435 | 2556.95 | Passaic, N. J. |
| Colonial Poultry Farms | 2495 | 2550.80 | Arizona |
| Stroehlein Brothers | 2503 | 2548.05 | Passaic, N. J. |
| H. Guy Loose | 2385 | 2547.00 | Pennsylvania |
| James H. Horne | 2440 | 2546.50 | Maine |

## 20 Highest Barred Plymouth Rock Pens in Country to August 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Dryden Poultry Breeding Farm | 2953 | 2963.65 | Pennsylvania |
| Dryden Poultry Breeding Farm | 2805 | 2865.25 | Central New York |
| David T. Cohen | 2711 | 2806.50 | Central New York |
| Dryden Poultry Breeding Farm | 2617 | 2747.45 | Missouri |
| Dryden Poultry Breeding Farm | 2676 | 2740.85 | Storrs |
| Riley Poultry Farm | 2685 | 2651.95 | Michigan |
| Fuzzydele Farms | 2543 | 2651.05 | Storrs |
| R. C. E. Wallace | 2561 | 2639.55 | Central New York |
| Charles Lathrop | 2513 | 2636.50 | Passaic, N. J. |
| Egyptian Hatchery | 2552 | 2596.40 | Missouri |
| R. C. Cobb | 2403 | 2563.80 | Storrs |
| Charles Lathrop | 2549 | 2563.40 | Hunterdon, N. J. |
| Riley Poultry Farm | 2475 | 2536.60 | Georgia |
| David T. Cohen | 2531 | 2483.40 | Arizona |
| Eben Wood | 2456 | 2481.95 | Maine |
| R. C. E. Wallace | 2365 | 2470.25 | Oklahoma |
| Weber Duck Farm | 2301 | 2462.15 | Rhode Island |
| R. R. Parks | 2438 | 2454.35 | Pennsylvania |
| Broad Acres Farm | 2288 | 2439.95 | Storrs |
| Weber Duck Farm | 2336 | 2431.20 | Michigan |

## 20 Highest White Plymouth Rock Pens in Country to August 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Oscar W. Holtzapple | 2571 | 2652.00 | Georgia |
| Riley Poultry Farm | 2670 | 2638.15 | Oklahoma |
| Quimby School | 2479 | 2604.30 | Rhode Island |
| Homestead Farm | 2565 | 2591.15 | Pennsylvania |
| Homestead Farm | 2471 | 2546.00 | Storrs |
| Oscar W. Holtzapple | 2463 | 2522.05 | Pennsylvania |
| Kalerok Farm | 2383 | 2519.30 | Rhode Island |
| Red Barn Poultry Farm | 2396 | 2519.20 | Storrs |
| Kalerok Farm | 2383 | 2479.75 | Pennsylvania |
| Albert C. Lawton | 2253 | 2373.00 | Rhode Island |
| Earl C. Dunham | 2261 | 2343.10 | Georgia |
| Tender Baby Broiler Hatchery | 2308 | 2340.90 | Oklahoma |
| Riley Poultry Farm | 2352 | 2320.65 | Michigan |
| Miami Chick Hatchery | 2217 | 2291.75 | New York State |
| Faith Farm | 2274 | 2284.80 | New York State |
| E. A. Hirt | 2111 | 2231.15 | Storrs |
| Kalerok Farm | 2102 | 2222.75 | Storrs |
| Lewis Farm | 2178 | 2221.25 | Rhode Island |
| E. A. Hirt | 2063 | 2209.35 | Rhode Island |
| Booth Farms and Hatchery | 2098 | 2202.90 | Missouri |

## Average Production in Each Test to August 1

| Test | No. Birds | Eggs Per Bird | Points Per Bird | Egg Wt. Per Doz. | Per Cent Mortality for July | Per Cent Mortality to Aug. 1 |
|---|---|---|---|---|---|---|
| Texas | 910 | 178.44 | 185.03 | 24.8 | 4.50 | 23.84 |
| Arizona | 260 | 177.86 | 181.26 | 24.4 | 3.07 | 14.61 |
| Pennsylvania | 1,131 | 176.12 | 181.11 | 24.7 | 2.03 | 13.61 |
| Storrs* | 1,300 | 174.24 | 180.96 | 24.9 | 1.53 | 15.38 |
| Western New York | 884 | 172.24 | 176.53 | 24.5 | 2.26 | 11.65 |
| Hunterdon, New Jersey | 650 | 170.30 | 174.59 | 24.6 | 3.09 | 20.76 |
| Passaic, New Jersey | 1,001 | 171.06 | 174.11 | 24.4 | 2.68 | 18.08 |
| Georgia | 1,300 | 168.10 | 169.28 | 24.1 | 2.46 | 24.15 |
| Central New York | 910 | 162.29 | 166.75 | 24.6 | 1.86 | 14.83 |
| Florida | 1,248 | 165.73 | 166.47 | 24.0 | 2.72 | 17.62 |
| Oklahoma | 650 | 160.50 | 164.83 | 24.6 | 3.07 | 19.23 |
| Michigan | 897 | 157.42 | 161.92 | 24.6 | 3.45 | 23.85 |
| Rhode Island | 650 | 152.85 | 160.68 | 25.2 | 3.07 | 21.38 |
| Missouri | 780 | 144.50 | 152.20 | 25.2 | 1.79 | 23.33 |
| New York State* | 1,222 | 147.11 | 147.16 | 24.0 | 2.94 | 19.14 |
| Maine | 1,027 | 138.17 | 140.0 | 24.3 | 2.72 | 26.87 |
| All Tests | 14,820 | 163.28 | 167.[illegible] | 24.5 | 2.64 | 19.41 |

* One week behind other tests in opening because of hurricane.

## High Pen, Each Breed, in Illinois Non-Standard Test to August 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Walter Swanson | White Leghorn | 1891 | 1921.45 |
| Egyptian Hatchery | Barred Rock | 1783 | 1804.95 |
| Mrs. Curtis Manshak | White Rock | 1466 | 1512.15 |
| Illinois Hatchery | Rhode Island Red | 1365 | 1478.40 |
| Corn Belt Hatchery | New Hampshire | 1137 | 1229.95 |
| Macomb Hatchery | Buff Orpington | 1046 | 1074.00 |
| Belldear Hatchery | White Wyandotte | 1063 | 1072.80 |
| H. R. Harnes | Brown Leghorn | 891 | 834.00 |
| Wallace Moody | Buff Rock | 731 | 734.45 |

## 5 High Pens, R. O. P. Progeny Test, Paterson, N. J., to August 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Stroehlein Brothers | White Leghorn | 3204 | 3337 |
| E. B. Parmenter | Rhode Island Red | 3043 | 3180 |
| Creighton Brothers | White Leghorn | 3043 | 3103 |
| Francis Townsend | White Leghorn | 3125 | 3026 |
| Wegatepa Farms | Rhode Island Red | 2961 | 2993 |

## High Pen, Each Breed, Vineland, N. J., Hen Test to August 1

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Sebold Poultry Farm | White Leghorn | 1938 | 2058 | Two-Year |
| Nedlar Farm | New Hampshire | 1656 | 1783 | Two-Year |
| G. E. Coleman | Rhode Island Red | 1606 | 1726 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 1159 | 1253 | Two-Year |
| J. A. Hanson | White Leghorn | 1354 | 1457 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 1242 | 1328 | Four-Year |
| Raymond Gardner | White Rock | 520 | 561 | Four-Year |

## High Pen, Each Breed, Vineland, N. J., Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| J. J. Warren | Rhode Island Red | 5405 | 5857 | Two-Year |
| Sebold Poultry Farm | White Leghorn |  | 5696 | Two-Year |
| Nedlar Farm | New Hampshire | 5288 | 5681 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 4202 | 4444 | Two-Year |
| J. A. Hanson | White Leghorn | 7258 | 7798 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 9906 | 10,446 | Four-Year |
| Raymond Gardner | White Rock | 5472 | 5804 | Four-Year |

## High Pen, Each Breed, in Pennsylvania Hen Test to August 1

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Booth Farms and Hatchery | White Leghorn | 2195 | 2377.95 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 1582 | 1722.35 | Two-Year |
| Fuzzydele Farms | New Hampshire | 1330 | 1455.45 | Two-Year |
| J. J. Warren | Rhode Island Red | 1155 | 1255.90 | Two-Year |
| Fuzzydele Farms | Barred Rock | 1576 | 1706.05 | Mixed Age |
| A. M. Wolgemuth | White Leghorn | 1111 | 1205.75 | Mixed Age |
| Schwegler's Hatchery | New Hampshire | 766 | 818.55 | Mixed Age |

## High Pen, Each Breed, in Pennsylvania Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Lindstrom Poultry Farm | White Leghorn | 5720 | 6054.10 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 4752 | 5049.70 | Two-Year |
| E. B. Parmenter | Rhode Island Red | 4476 | 4735.00 | Two-Year |
| Fuzzydele Farms | New Hampshire | 4404 | 4643.15 | Two-Year |

## Among Our Contributors

**E. A. Nisson** (p. 513), president of the Pioneer Hatchery of Petaluma, Calif., is a son of Christopher Nisson who is considered one of the founders of the baby chick industry, hence, his intimate knowledge of the growth and development of the hatchery industry. He helped to organize the California Poultry Improvement Association and became its first president. In 1936-37, he was president of the International Baby Chick Association.

**A. Trippitelli** (p. 538) is a sales and service representative for the Beacon Milling Company. Being located near New York City, he has had the opportunity working with nearly 50 battery plants which have sprung up in the surrounding area, so he has become familiar with the problems which arise under this system of management.

**Tom Barron** (p. 531), probably the world's best known poultry breeder, was influenced in raising poultry as a livelihood by reading the articles of the late Sir Edward Brown in an English newspaper. His prominence in the United States came about through his success in winning the Storrs Contest early after the start of laying competitions. The result is that Tom Barron White Leghorns are still widely advertised in this country today, numerous shipments of breeding stock having come from his farm at Catforth, England, to America.

The audience which heard Mr. Barron speak at the Seventh World's Poultry Congress was estimated at between 4,000 and 5,000—believed to be the largest crowd ever to listen to a poultry talk in one meeting room in the United States.

**Guy A. Leader** (p. 522) gave up teaching to go into the poultry business back in 1911. His White Leghorn poultry breeding farm now carries 11,000 birds. Many who have visited his plant come away feeling that it is the most picturesque and attractive, practical poultry farm layout they have ever seen. So impressed are visitors that some conclude the farm is being operated as a sideline to some other business, but Mr. Leader's plant has developed gradually, and expansion has come out of the profits.

While the Leader Leghorns are never entered in more than two laying tests each year, they have succeeded in making some outstanding records over a period of years. Leader pens topped the Pennsylvania test in 1933, 1934 and 1936, and are leading the current test.

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◄◄ FRANK PEGLOW, poultryman of Elgin, Ill., has a 20-year old White Minorca hen called Henrietta that is still laying eggs, according to the September, 1939, issue of Journal of American Veterinary Medical Association.

◄◄ JAKE LUKENBILL, a Colfax, Ill., farmer and poultryman, probably holds the world's record for egg-eating. He ate 30 raw eggs one evening, and the following day ate 60 more! A total of 90 eggs in 18 hours. After consuming al these eggs in an egg-eating contest, Jake said: "I lay down and rested for while, then went out and did my chores."

—Poultry Tribune, September, 1939.

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## OCTOBER, 1939

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In promising to publish all of the talks given on the popular program at the Seventh World's Poultry Congress in the five issues of the NATIONAL POULTRY DIGEST from August through December, it appears as though we underestimated the amount of space that would be required.

This issue contains eight Congress talks in condensed form, but there are 14 more to be published, and it may be necessary to postpone publication of several of them until January. None of the talks presented on the consumer program has been published, so these, too, will have to be held over until 1940.

Normally, a half hour talk consists of about 12 or 13 pages of double-spaced typewritten material. Some of the talks delivered extemporaneously, however, ran as high as 20 and 21 pages. As a rule, a talk that has been delivered from notes usually can be condensed more than one prepared in manuscript form, so it has been possible to reduce some of the talks to half their original length without loss of continuity and without detracting from the subject discussed. As many as a dozen readings of the original are often required in the process of condensing.

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Several of our subscribers among breeders, hatcherymen and feedmen have inquired as to whether there would be a reduced price on the DIGEST when ordered in quantities as gift subscriptions to customers.

While a reduced price would undoubtedly result in some additional circulation, the circulation building efforts on the DIGEST are necessarily different than those of a general poultry magazine which seeks volume of readers in order to attract advertising. We have to get a subscription price sufficient to pay the cost of manufacturing and delivering the 12 issues to a subscriber, and present costs do not permit us to drop below the $2.00 a year price.

Quite a few subscribers have ordered gift subscriptions for their friends, and we hope that others will do so on the basis of the value which the NATIONAL POULTRY DIGEST represents in current poultry literature.

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NATIONAL
POULTRY DIGEST

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# How Will the War Affect the U. S. Poultry Industry?

By Frank L. Platt

*Condensed from the American Poultry Journal*

**Point No. 1**

After the U. S. entered the last war, the poultry business was affected. Chickens are not a war commodity; their carcasses are too bulky to ship overseas, compared to a dressed hog. Armies don't eat chicken. The use of poultry and eggs, however, expands at home, and during 1917 and 1918, the U. S. Government made great effort to increase chicken raising on the farms, and at the same time persuade the consumers in cities to eat chicken and eggs, thus releasing pork and beef for foreign shipment. The American consumer has ever since been more conscious of chickens and eggs in his diet. We enter the present era with that advantage, i. e., consumer attitude toward our industry and consumer consciousness of our products.

It should be remembered that there was an expansion of poultry growing operations in the grain growing areas of the Central States during the war period, partly due to this government urging. Some hatcheries did a very good business.

The best illustration of the trend during the last war, is found in the price structure. Following are the prices for eggs, New York City, as published in Farm Economics, Cornell University, these being average prices for the 5-year period of 1910 to 1914, of 34 cents a dozen; for 1914 alone, 36 cents; for 1915, 36 cents; for 1916, 39¾ cents; for 1917, 51 cents; for

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MUTILATED PAGE

1918, 62 cents. The prices for chickens were 15 to 16 cents a pound during the three years of 1914, 1915 and 1916, moving to 21 cents in 1917, and 27 cents in 1918.

### Point No. 2

Talk of "liquidating" the poultry business as a result of the present war, may well bring the inquiry of whether it is not already pretty well liquidated. As already stated, the 5-year period of 1910 to 1914 shows an average egg price for top grade eggs in New York City of 34 cents. No year since 1930 can show a price to equal that. Last year the average price was 28 cents, and it is doubtful if 1939 will wind up with any better showing. This is point number 2 to remember.

Hatcheries that have expanded their operations since the panic of 1929, have grown in spite of bad conditions, for everybody knows that the financial condition of consumers in the U. S. has been none too favorable for the past 10 years.

In case the U. S. should get into war, there might be some forced liquidation in certain areas. During the last war, the roaster growers on the south shore of Massachusetts went out of business, not only because feed was high in price, but also because the railroads were so heavily burdened with transport that the movement of feed was embargoed by the government. It might be reasonable to suppose that under like conditions, something similar could happen to the specialized broiler growers of Delaware. Also, any embargo on the movement of feed would affect egg farmers in the Eastern states. This is mentioned because some people appear to remember only the latter end of the first world war, when these inconveniences and losses were experienced. Unfortunately, due to taxes and politics, the railroads are in no better position today to carry a heavy movement of war goods to the Atlantic ports, and still handle ordinary commerce as usual. But why speculate on what might happen if the U. S. became involved? Let's keep our feet on the ground and return to the present situation. There never was a time when one could tell for sure what would happen a year, or 2 years, or 3 years hence. It may be well enough to take the long view, but the hard fact is that each general must fight each battle in turn.

### Point No. 3

The first noticeable effect the past month, after the outbreak of war, was the tendency for commodity prices to rise. The storage egg situation, which had looked none too rosy, changed decidedly for the better. Commodity prices have been too low. The price situation in this country has not been favorable for good times. Nobody wanted those who bought spring eggs in 1939 to have another disastrous year. That would have wrecked the outlook for 1940.

Wheat, along with other commodities, has advanced. It is ridiculous for wheat to sell at prices comparable to the days of William Shakespeare. To have good times in this country and the world, the price structure has to be on a higher basis.

There is no danger of a famine in grain. The government is now holding 250 million bushels of corn from the 1938 and 1937 harvests. There is no danger of the grain market hitting the sky this year. England and France will not need our wheat immediately. The rise thus far is partly sentimental, because wheat is a war commodity.

It is quite reasonable to suppose that commodity prices will tend to strengthen. They will advance and fall, but the curve should be upward. They are starting at a very low level. Merchants in this country have low inventories. They have been buying from hand to mouth since 1937, when the President said prices were too high, and in the fall many merchants were caught. As the market rises, they will buy more freely and so will their customers.

On top of this there will be buying of war goods by England and France. This will be greater a year from now, if the war doesn't stop as suddenly as it began, than it is now. The embargo on arms offsets only 10 per cent of this trade. Here are two sources of buying that will feed American industry and agriculture, and help put to work the millions who are out of jobs and whose buying power is at the lowest ebb.

Add to this buying power the customers of European countries. Germany, for example, has made the world a present of her laboriously built up trade in South America and Central America. These nations may not be paying bond interest but they are still buying goods. The rise in demand from Latin-American countries is already heavier than looked for. England and France are too busy with war to cater to this trade. Japan, who got rich out of the first world war, is caught flat footed, spread out in China, with home industries geared to supply its own army. The U. S. is left alone to intensify her bid for South and Central American trade.

Now, there are other factors that will boost business and industry in U. S., chief of which is the unpreparedness of this country for war, and the necessity under existing world conditions for a speed-up program. Watch the steel centers and the coal mines get busy, and where are there better customers for eggs than these workers when they are on full time and full pay?

### Conclusion

In short,, this country is starting from a very low point in both activity of industry and in prices. It is no secret that conditions in U. S. have not been good. In spite of the low prices for eggs, there are so many unemployed, and business conditions are so unfavorable, that eggs are marked as a surplus food, to be given free by the government.

If a man in the chicken business, or a hatchery, or a World's Poultry Congress can make good under such conditions, it would seem logical that with higher prices, more employment, greater industrial activity, more exports to other peoples in the world, business would be better instead of worse.

It is true that eggs and chickens are not war babies, to go up on the first plane, but they do thrive on home prosperity. And once the log jam is broken and industrial activity gets started, remember this, the gold holdings and the heavy issuance of government bonds in this country could become the basis of a credit inflation that would be as big a problem as the last 10 years of deflation have been.

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¶¶ AFRICAN witch-doctors "treat" the sick by swinging chickens over their bodies. They believe the disease leaves the patients and enters the chickens. —Carl H. Schroeder, Poultry Tribune, October, 1939.

**Perhaps We Can Learn**
**Something by Observing the . . .**

# Feeding Habits of Chickens

By F. N. Marcellus
Ontario Agricultural College
Guelph, Ontario, Canada

*Condensed from a Talk*

CAN the chick teach us anything? If it is given opportunity to choose and refuse in its feeding, can we learn anything as to its requirements? Have the findings of scientific research caused us to ignore entirely the chicken as a possible source of information and a help in the solution of some of our problems? Is it not possible that closer observation of the natural instincts and habits of the chicken may also be of some value? Too frequently there is the suggestion that the operator thinks the hen is a machine rather than a biological specimen influenced and controlled by the natural biological laws of life.

### The Chicken's Choice of Feed

If we give chickens a choice of two mill by-products, prepared from the same cereal grain, the one degerminated and the other containing the germ, the birds will invariably select the one containing the germ. This is not mere chance, as any amount of changing of position or type of container in which the products are supplied will not alter the birds' behavior.

The wisdom of this selection on the part of the bird, has, in recent years, been verified by scientific research. The special nutritional value of these cereal germ products is generally recognized, but perhaps not as yet fully understood. However, it did not require this scientific knowledge to persuade the chick to select the by-product that contained the germ.

Is there not a possibility that much of our trouble from nutritional deficiency may be due to over-extraction in the processing of the products used?

### Preference for Fresh Feed

Birds may show a decided preference for grains freshly ground over those which have been ground some time in advance of feeding.

You may say it is a question of palatability. This is probably true, but what makes the difference? Is it the result of oxidation of the fat in the germ of the product? If not, what change occurs in the product as a result of exposure of the broken kernel to the air? Apparently such changes do not occur in the whole grain. If it is a case of oxidation, to what extent has it affected the vitamin content of the germ or the fat, protein or mineral content of the balance of the grain? Is the change one of palatability only, or has the nutritive value been lowered?

### What Guides Feed Choice?

Various experiments have been conducted to ascertain whether the bird, in any selection of its feed, was guided by taste or smell. It may be one or the other, or just instinct—call it what you will—nevertheless, it is able to make a very fine job.

Presented at the Seventh World's Poultry Congress, Cleveland, Ohio, July 31, 1939

In some experimental work carried on a few years ago, chicks were provided with 27 different kinds of feed. These included cod liver oil in an open fountain. Feeding was started when the chicks were about one week of age. The feed containers were moved once or twice each day, so that their position in relation to each other was changed at each move. This shifting of feed containers also took care of any variation in the amount of light in different parts of the pen.

The birds early showed a preference for certain feeds, and regardless of the frequency of changing the position of the feed containers were able quickly to locate the preferred material.

The development of the chicks appeared quite normal. There was no visible evidence of perosis, nor feather-pulling cannibalism nor other bad habits. The chickens were the very essence of contentment and the growth rate was up to normal standards.

### CLO Needs Adjusted to Weather

Perhaps one of the most striking occurrences observed in the birds' selective behavior was with respect to their intake of cod liver oil. Young chicks, placed in the brooders in early March, consumed the equivalent of over 2 per cent of the total ration of oil from open fountains. The amount consumed gradually declined as the season advanced and the hours of sunshine increased. This decrease continued until May, when it amounted to about one-tenth of 1 per cent.

Another point of interest was that while there was this gradual decline in the amount of oil consumed, at any time when there occurred a period of several days of dull, cloudy weather, the intake of oil increased until the weather cleared. The intake would then drop to a level below that preceding the cloudy period.

Other observations of a somewhat similar nature have been made upon cod liver oil requirements of other birds. For instance, in a number of cases chicks were brooded under rather adverse conditions in so far as exposure to sunlight was concerned. They were receiving a ration considered adequate in oil supply, but, when a drinking fountain of cod liver was furnished, indulged quite freely. In most of these cases there was some slight evidence of D vitamin deficiency, although in possibly 98 per cent of other groups of chicks the same ration was quite satisfactory.

Another similar instance was experienced in adult birds. Production started early in the Fall and continued heavy until January. From possibly October until after the new year, the weather was almost continuously cloudy. The ration fed was one that had proven adequate under practically all conditions. However, these were abnormal and when additional oil was given "ad lib," the consumption would increase very definitely for a week and then rapidly decline with the increasing hours of sunshine.

### Free Choice of Minerals

Another interesting observation on the free choice feeding was with reference to mineral consumption. In the tests referred to with chicks, the intake of bone meal was much less than the percentage commonly mixed in most chick rations. The consumption of this material varies somewhat with different individuals. This is perhaps only as one might expect. There certainly is quite a difference in the rate of growth or the rate of production of eggs, by different individuals. Their requirements for minerals would, therefore, vary in line with growth or production.

In view of the fact that minerals in excess may be just as injurious as a deficiency, is there not a possibility that by placing in the ration an adequate supply to meet the maximum need of any individual, there may in the same flock be another, that in proportion to its requirements, is forced to consume an excess?

It is, of course, a generally recognized fact that the way to feed minerals to all live stock is through the soil and plant to the animal or bird. Birds, however, do require some supplementary mineral feeding, but the plant source may provide greater variety and some of the trace elements that may be so essential to proper nutritional balance.

The free-choice feeding referred to is not offered as a suggested practice for adoption as a feeding routine. It is rather an illustration of the possibility of the bird giving us a lead as to where we should go in the solution of some of our vital problems.

### Cannibalism and Feather Pulling

There has developed in recent years an increasing amount of trouble from feather-pulling, cannibalism, and similar troubles. Is the cause of such troubles faulty nutrition? If so, then in what direction have we advanced in our nutritional studies? Is the trouble due to changed environment and crowding, or the general trend to produce both eggs and chicks out of the natural season?

There are some indications in some cases at least, that mechanical irritation of the gut may be a factor. On one of our large commercial plants where thousands of chicks are started in batteries annually, trouble was experienced every season with toe-picking, feather pulling, and cannibalism.

An approved ration was used in which all ingredients were finely ground. Increased ventilation and humidity, red paint on windows and reduced light failed to stop the trouble. The same ration was then coarse ground, and after 10 days feeding on the coarser material, the chicks appeared less nervous and the picking was greatly reduced. This is not an isolated case of this observation but one of many.

### Coarse Feed Preferred

This variation in the reaction of the bird to the degree of fineness of grinding of some feeds may be explained, at least in part, by the following observation. The feeding test was carried on with oats. The grain was milled in five different ways. In three cases the hulls were left in the product, while in the other two they were removed.

In the first group, one lot was rolled or crushed, another was chopped in a steel plate chopper, while the third lot was finely ground in a hammer mill. In the case of the other two products, one was steel cut oat groats or pinhead oat meal, and the other was rolled oat groats or household rolled oats. All five oat products were placed before the birds at the same time, allowing free-choice feeding.

The heaviest consumption was from the rolled or crushed product, while the fine hammer-ground oats were not eaten at all. A similar experience was met with in the feeding of alfalfa. If this material was fed as hay, everything was eaten up except the coarse stems. If the alfalfa was ground fine in a hammer mill and fed in separate containers, however, the birds would not eat it.

The fine grinding of feeds is probably not objectionable with all materials. In the case of a feed fairly high in fiber, however, fine grinding may produce a product that is acted upon to only a slight extent in the gizzard, passing almost directly to the intestines where the fine fiber particles irritate the mucus lining. This constant irritation reacts on the nerves, producing a restlessness associated with most picking troubles. The method of processing such grains as oats and barley for poultry feeding may be almost as important as their composition.

### Preference Shown on Green Feeds

This evidence of selection on the part of the bird is not limited to prepared or supplied feeds. If one were to have available for early spring pasture an area of mixed clover, alfalfa and timothy, an area of June grass and also one of fall rye, and the birds were given access to all three, they would probably eat the June grass first in preference to the others.

It is also true that if one had adjoining plots of fall rye, oats, wheat and barley of about the same stage of development—before stem growth started—the birds would eat the oat grass first.

### Short Pasture Growth Best

The common recommendation for an ideal pasture is one that is kept short. This is especially true with chickens. The birds will feed more readily from the short tender growth, probably because of its higher nutritive value and lower fiber content. In the case of permanent grass pasture, this would mean cutting frequently in order to keep the growth under 6 inches in height. Cutting is also possible and may prove good practice, even with the cereal grasses, provided the cutting is done before the plants develop the first stem nodes.

The production of tender succulent pasture for chickens, during the growing season, is proving especially important. If properly managed, there is a continuous supply of tender green feed. The nutritive value of such a crop is high and it has a definite physical effect upon the birds. They grow well on such feed and appear to have more stamina when production begins. They also show less mortality during the first year in production. This result may be associated with the observation that birds grown on a good pasture of short, tender grasses will, in most cases, show very little trouble from intestinal parasitism.

The pasture plants must, however, be in an active state of growth. If the forage is green, but is in a dried-up condition with little or no cell activity in the plant, it will prove of little value for chickens. The addition annually of some commercial fertilizer, especially one high in phosphate and potash will help improve the feeding value of the crop as well as increase the volume of forage.

The production of special pasture crops may not be the only factor associated with the effect on parasitic troubles. In maintaining the right kind and quality of pasture, frequent cultivation is usually found necessary. The heavy consumption of tender green material no doubt produces a condition in the gut unfavorable to the activity of parasitic organism, but the cultivation of the soil helps keep them under better control on the range.

In feeding chickens on range, or in brooders, it is a question whether whole grain cannot and should not be fed earlier than is common practice. In most cases, whole grain is rarely fed until chicks are seven or eight weeks old, or even older. In recent years we have started feeding whole wheat to chicks when ten days to two weeks of age. Only one or two grains of wheat per chick would be fed at the start, but the amount gradually increased.

#### Whole Oats for Young Chickens

During the past season whole oats of good quality—37 pounds per bushel—were fed to chickens five weeks of age. The results of this whole grain feeding have been excellent and there has been the saving in the cost of feed. There is also the possibility that there has been less loss of nutritional value from oxidation which may occur in feed ground some time in advance of feeding.

It is absolutely essential where feeding whole grains as suggested, and especially oats, that the chickens have an abundant supply of hard, insoluble grit available at all times. The combination of oats and an abundance of green feed may be a factor in the control of picking and cannibalism.

Recently, in a flock of 2700 White Leghorn pullets being reared indoors in large, roomy, well-ventilated pens, feather-pulling and cannibalism were rampant. In an attempt to control the condition, increased quantities of green feed and whole oats were supplied. The trouble had practically stopped at the end of two weeks. The value of oats and oat fiber in the control of cannibalism has, of course, been recognized for some time.

Intensified methods of production, changed seasonal distribution of egg production, and chick rearing have each and all helped to introduce new problems in the feeding of poultry. Other factors have had their effect.

However, the chick may still be capable of leading us to a solution of some of our difficulties if it is given the opportunity to exercise its natural instincts and our keenness of observation can comprehend and interpret its actions. Once a bird has developed sufficiently to establish certain habits, however, it is then less likely to be influenced by the opportunity of free choice than where such practice is started with the young chick.

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## *Church Groups Help with Odd Poultry Jobs*

No doubt in your community there is some struggling church congregation. I know we have one here, and it has been my pleasure and satisfaction to be able to turn a number of odd jobs over to the Ladies Aid Society to help them pay the church expenses and improvements.

When I have a large number of chickens that I want dressed, instead of hiring extra help, I just let the ladies do it at so much per chicken.

In the spring when we are getting out thousands of catalogs and price lists, we let the ladies address the envelopes, put catalogs in envelopes, stamp them, etc.

They do all this over at the church work room. It saves us crowding in extra help here, and helps us to get literature out on time, as they always have a lot of catalogs in envelopes and stamped ahead of time for us.

Then, too, I feel helping the churches is always helping one's self as well, and the community too.

—J. W. Parks, Poultry Tribune, September, 1939.

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# Breeder Hatcheries and the Future of the Poultry Business

By M. A. Jull
College Park, Md.

*Condensed from a Talk*

BREEDER hatcherymen have a great responsibility in supplying the commercial hatcherymen with the kind of breeding stock which will enable them in turn to supply approximately five million flock owners in this country with the quality of chicks that will produce efficient results.

The whole problem is one of efficiency—efficiency in broiler production, efficiency in the growing of turkeys, and efficiency in commercial egg production. We now have approximately 400 million laying hens in the country, and each year the commercial hatcheries produce approximately 700 million chicks. But entirely too high a percentage of those 700 million chicks that are hatched die before they reach the productive age.

A recent survey revealed that certain hatcherymen spend five times as much on chick replacements as on a breeding improvement program. That is an indictment against the commercial hatchery industry today.

#### Intelligent Breeding Will Cut Losses

I believe the time has come when they should do everything possible through the adoption of an intelligent breeding program, coupled with the eradication of disease, so that the flock owners who purchase chicks may not suffer the heavy losses which are entailed year in and year out. They must amount to several hundred million dollars every year.

Several years ago a survey of the results secured by the leading flock owners and egg producers was made in 11 or 12 different states where they have a definite program carried on from year to year, designed to improve the egg production level. It was found that the flock selection methods employed on a mass basis over a period of nine years did not result in any material increase in egg production.

A commercial hatcheryman who simply employs mass selection methods cannot make much improvement in the quality of the chicks which he supplies from year to year. He is dependent in the long run upon the breeder hatcheryman who must use pedigreed breeding methods and progeny testing in order to develop superior strains and families that will produce results along the lines I have indicated.

Too many breeder hatcherymen, as well as commercial hatcherymen, do not appreciate the importance or the effect of breeding from poor quality stock. An inferior female may produce from 10 to 20 chicks in a year, which, when multiplied and bred from, will increase the relative inferiority of the entire flock.

#### Eliminate the Unfit

The first step in a pedigreed breeding program or a rational breeding program is to eliminate the unfit. That will make for considerable im-

Condensed from talk "The Future of the Poultry Business as Dependent Upon the Breeders and Breeder Hatcheries of America." World's Poultry Congress, Cleveland, Aug. 4, 1939 provement in the average quality of the chicks supplied by the commercial hatcheryman individually or those supplied by commercial hatcherymen to the five million-odd flock owners.

The selection program must be coupled with the pullorum testing program. Some of you may not realize the reason that pullorum testing involved the only specific disease coupled with the breed improvement part of the National Poultry Improvement Plan. It is because up to a short time ago, in so far as scientific evidence was available, the pullorum disease was the only disease that had been demonstrated to be communicated from the dam to her progeny through the medium of the egg.

We may have to modify that very shortly. In addition to having the pullorum disease set forth in the National Poultry Improvement Plan or any sound breeding plan, we may have to add other diseases, such as range paralysis. There is evidence now that it is transmitted. More evidence, however, is necessary before that can be substantiated.

The pullorum testing program, whether you are applying the tube test or the blood test, should be carried on under the official supervision of some impartial state agency.

As far as livability is concerned, we have made marked progress during the past 10 or 15 years in reducing losses from chick mortality, coccidiosis, and internal parasites through the adoption of a rational range program. We have also made progress in certain sections of the country with respect to losses from pullorum disease.

### Must Breed for Resistance

There is one aspect, however, that I should like to emphasize in that connection. In certain sections of the country where they have made the greatest progress in the eradication of pullorum disease, it is my opinion—right or wrong—that they have not paid sufficient attention to the important problem of breeding for disease resistance.

We know that when chicks from pullorum-free areas are introduced into sections where pullorum still exists, those pullorum-free chicks sometimes die like flies. I believe that the breeder hatcherymen in those particular sections do have a distinct responsibility in breeding for disease resistance. We, in Maryland, have demonstrated that it is possible. In a special project carried on for the last eight years, we have demonstrated that it is possible to make material progress in breeding for resistance to pullorum disease.

Strains of birds do differ in their resistance to specific infections. Whether or not there is a general mechanism in the organism of a bird which will enable it to resist disease in general remains to be determined in the minds of some pathologists and others. It seems to me that the practical observations of every-day poultrymen clearly demonstrate that there are very great differences between strains of birds in their ability to resist disease in general.

### Growth Rate Affects Profits

Growth is another problem that affects the returns which the purchaser of the chick secures. The rate of growth differs among strains of chicks. We have demonstrated in Maryland that some strains of broilers required approximately 13 pounds of feed to produce a 3-pound bird whereas other strains required only 10 pounds of feed to produce a 3-pound bird.

Since many of our commercial broiler operators produce from 100,000 to 300,000 broilers a year, the growth factor is one thing that the breeder hatcheryman and the commercial breeder hatcheryman must keep in mind if they are going to supply the broiler operator with the kind of chicks that will produce the greatest results.

### Feathering Important in Broilers

Feathering is another important factor affecting profit, particularly in the case of broilers and friers. In Maryland, for instance, we are producing mostly crossbred broilers. Barred Rock males are mated with New Hampshire Red females. This cross is used because of the demand on the part of the New York market, which is the largest market in the world. The New York live broiler market demands a colored and barred broiler.

Certain strains of Barred Rocks have been notable for their slow growth and very poor feathering, to the extent that as many as 30 per cent of a flock may be relatively bare of feathers over the back at six and eight weeks of age.

I believe that the American Poultry Association has done a very wise thing in adopting a single standard for Barred Rocks. In certain strains of highly developed Barred Rocks, it has become apparent to us that those breeding stocks carry a number of inheritance factors which are responsible for lowering the hatchability and for causing poor feathering in addition to slow growth.

Certain strains of Rhode Island Reds have also been noted for poor feathering during the first six to ten weeks of growth. These must be eliminated by the breeder hatchery operator in seeking to promote a superior strain of breeding stock.

### Select for Fleshing Ability

Fleshing ability has been neglected to a very great extent by the commercial hatcheryman and the commercial breeder alike. Strains differ with respect to fleshing ability, but practically nothing has been done to determine the desirable type of breeding stock to produce the quality of chick that will flesh rapidly with a well developed breast. More research is needed.

The hatchery breeder has a particular responsibility here in selecting those strains from among his different breeding pens that will produce chicks with superior fleshing qualities during the first eight or ten weeks and also carry through to superior finished birds with respect to flesh, as, for instance, roasters in the fall of the year.

That, in a large measure, is one of the unsolved problems of the poultry industry, but it means thousands of dollars in the pockets of the producers once they are able to obtain strains of chicks noted for superior fleshing ability.

### Breeding for Egg Production

There are certain responsibilities that rest upon the breeder hatchery operator in this problem of developing superior strains of birds noted for their laying ability. A 100-egg hen requires 8.3 pounds of feed to produce a dozen eggs; a 200-egg hen requires about 5 pounds of feed to produce a dozen eggs. There is a problem of very great practical importance to the flock owner.

Between the 100-egg hen and the 200-egg hen is a difference of 3.3 pounds of feed required per dozen eggs. That is a tremendous difference when applied to the total number of eggs produced in the United States.

The average egg production of pullets in farm and commercial flocks is determined by the breeding operations that the breeder hatchery operator carries on to a very large extent, since the commercial hatcheryman is dependent upon the quality of the stock which he secures from the breeder hatchery operator.

With the approach of stability in our human population and with the increase in the average egg production per bird of the country's flocks (18 per cent from 1925 to 1938), we are approaching the problem as to whether or not egg consumption can be increased per capita, or whether or not we shall have to reduce our laying stocks. That is a problem of very vital importance to both the commercial hatcheryman and the breeder hatcheryman. The problem is of very great practical importance to the industry.

If we do not increase egg consumption, we face another very important problem with respect to a greater decrease in cereal grain production. To bring this important problem clearly into your minds, a 20 per cent increase in egg production would mean that the poultry industry would use some six hundred million fewer tons of feed in a year. That is a problem of interest to the feed companies as well as to the poultry industry.

Regardless of the outcome of the industry and whether or not we can increase per capita consumption, it is still a problem to increase the efficiency of egg production to whatever extent that is possible. The greater the number of eggs produced per bird, the fewer the birds required and the less the amount of feed consumed, the greater will be the profit per bird. It is a problem of immediate importance to the flock owner.

### Age at Which Laying Begins

There are four factors that are primarily responsible for the determinating of the number of eggs laid per bird. Very briefly, the Leghorn should commence laying in 160 or 175 days if she is going to lay 200 eggs a year. The Rocks and Reds should start laying 30 days later, or approximately 190 days, if they are to lay 200 eggs during the year.

### Rate of Lay

The second factor is that of rate of laying, whether or not a bird will lay every other day or every third day, as too many of our birds do lay from year to year, or whether it will lay from 12 to 25 eggs without skipping a day. Briefly, a bird should lay at about a 60 per cent rate if she is going to lay 200 eggs a year. That applies to all breeds.

### Eliminate Broodiness

The third factor is that of broodiness. This is of particular importance regarding the heavy breeds, Leghorns for the most part showing very little broodiness. This is important in Rocks, Reds, and New Hampshires for the simple reason that the longer a bird is out of laying condition due to broodiness, the more money you lose. Multiplied by 100 or 1,000 birds in the case of a large commercial producer, it means a considerable amount a year.

If you want to eradicate broodiness from your flock, never use a broody hen as a breeder. That applies to all flock owners including those who do not use trapnests. The broody hen can be identified at night and should be banded. She will go to the chicken pot when you cull. Culling should be practiced every month of the year.

### Persistency of Laying

The fourth factor which affects the number of eggs laid by a hen in a year is what we know as "persistency of production." This is the length of time that she continues laying from the first eggs produced. This is the most important of all four factors.

From a practical standpoint, the breeder hatcheryman can determine those birds which are his most persistent producers by trapnesting or by averaging the number of eggs produced in August and September, the months toward the close of the first laying year. Birds that will average 25 or more eggs are among the best producers and, of course, are among the birds that should be selected as breeders.

The pedigree hatchery operator does have a distinct responsibility in paying particular attention to these factors: sexual maturity, rate of laying, non-broodiness, and persistency of production. He must do this if he expects to produce superior breeding stock, in the form of cockerels particularly, to supply to the commercial hatchery operator.

Those four factors can be incorporated into any flock by the progeny test method. This method is the most reliable index of selecting breeding stock for any purpose.

Progeny test methods can also be applied in respect to these other factors which I have mentioned, influencing fleshing, rate of growth, and livability of the chicks. In many respects, it is the only method which the breeder hatcheryman can put into effect which will assure him of making material progress in the objects for which he is selecting his breeding stock.

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## *Eggs Under the Liberal Diet*

The number of eggs eaten by any given individual is likely to be determined by his likes and dislikes much more than by his knowledge of nutritive values. Liberal diet recommendations of the United States Department of Agriculture, however, call for four to six eggs per person per week, and also some in cooking. It has been estimated that if the entire population of the United States began consuming a liberal diet, the annual egg production would have to be increased by 875 million dozens in order to meet the increased demand. This amount of eggs represents one major difference between the present American diet and the ideal diet required for maximum health, vigor, and efficiency of our population.

These figures constitute a challenge to the poultry industry and, at the same time, a justification for attempts to induce consumers to put more eggs on their tables and to use more eggs in cooking.

—Maryland Poultry Handbook, University of Maryland, College Park, Md.

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¶ SALES of mixed feeds in Ohio in 1938 were estimated at 304,891 tons, of which 159,642 tons represented poultry feeds, according to the Ohio Bi-Monthly Bulletin.

# Practical Poultry Breeding

By Horace Dryden
Modesto, California

*Condensed from a Talk*

WHILE we marvel at the magnitude of the poultry industry and its importance in our world economy, let us not forget that ours is an infant industry, that our future and our destiny lies ahead, that only 30 years ago there was no such thing as a specialized poultry industry anywhere in the world, because no strains or breeds of fowls of sufficient productivity to make specialized poultry keeping profitable existed. There would be no large poultry industry today but for the work of the breeder in practically doubling the production of our domestic fowl in the brief space of 25 years.

At the turn of the century, the Leghorns were a small breed, refined and delicate, lacking in body capacity and inherited ability to produce eggs profitably and generally unsuitable for the requirements of a commercial poultry industry. No strains of the heavy breeds existed that would lay well or grow and feather rapidly.

### Gowell's Work With Trapnest

The first methodical attempt in the United States to increase egg production by selective trapnest breeding was begun at the Maine Agricultural Experiment station in 1899 under the direction of Professor Gowell. These experiments ended in total failure. In Bulletin 157 of the Maine Station published in 1908, the announcement was made that "there is no evidence of any increase in the average production of the flock."

In a later bulletin, 192, published in 1911, the following statement was made: "It now seems quite generally agreed that about the only profitable function of the trapnest in practical or commercial poultry keeping is in connection with special needs or problems, as, for example, in the work of the fancier."

So as late as 1911, even some scientists questioned the inheritance of egg production.

In November of 1896, James Dryden, my father, who was meteoroligist, official photographer and instructor in stenography and business accounting of the Utah State Agricultural College, was given the additional task of establishing at Utah the first poultry department in any American institution of learning. He began at once a rather exhaustive set of experiments with chickens, dealing mainly with feeding and management, and in 1897, the following year, published his initial findings in Utah Station Bulletin 51, the first college bulletin relating to poultry ever published in the United States, if not in the world.

While Gowell at Maine was becoming convinced that egg production in fowls was not an inherited characteristic, my father was forming an opposite opinion, and in 1907 when he was called to organize the poultry department of the Oregon State College at Corvallis, Oregon, came the opportunity to establish the fact of which he was now convinced — that better egg production could be bred into chickens through careful trapnest selection.

### From 106 Eggs to 200

Working with a larger number of fowls than had Gowell, doing more trapnesting and more pedigreeing, using only good producers for breeding, the production of the Oregon Station Leghorn pullet flock was raised in the brief space of six years from an average of 106 eggs to 200 eggs, and the Barred Plymouth Rock average raised in eight years from 86 eggs to over 200 eggs without any change during the period in feeding, housing or management.

This was the first definite scientific experimental evidence ever presented anywhere in the world that high egg production in fowls is a definite inherited characteristic. The results obtained at Oregon, which were summarized in Oregon Station Bulletin 180 published in 1921, were at complete variance with those obtained at Maine.

### First 300-Egg Hen

The world's first 300-egg hen, Lady MacDuff, was produced at the Oregon Station in 1912, a new and exceptionally vigorous type of Leghorn weighing 5 pounds. It may interest some of the critics of high producers to know that this hen lived to be five years old, proved a splendid hatcher and breeder, had a daughter's average in one year of over 250 eggs and that the daughters showed almost perfect livability. While the honor may be a dubious one, I had the task of burying this remarkable hen.

Not only was the fact of inheritance of egg production scientifically established for the first time on the Pacific Coast, but if I may say so, it furnished the leadership to break from tradition and point the industry along the path of progress and development that led to Seventh World's Poultry Congress in 1939. Further, the Pacific Coast also contributed our first large, specialized commercial breeding farms devoted strictly to improving the commercial usefulness of fowls by trapnest selection. The early history of successful production breeding in the United States is largely a history of the Tancred and Hollywood farms in Washington and the Hanson farm at Corvallis, Oregon.

### The Role of Laying Tests

In 1911 at Storrs, Connecticut and Mountain Grove, Missouri, were started the first official American laying tests. Both of these tests, as well as some 15 others are today operating.

Whether or not we agree with the purpose or mode of operation of official laying tests, we must admit that they have played a very important role in developing our commercial poultry industry. They have performed a valuable service in adding authenticity to bona fide trapnest records and at the same time proving the absurdity and impossibility of some private records of production that were being claimed. They led the way in pointing out the important variation in production between different breeds and different strains, and they have emphasized and dramatized the necessity of continuous selection for the factors of commercial importance.

The laying tests have served as proving grounds for breeders and have made the work of the breeder more interesting by adding the note of competition. They have been largely responsible for the definite improvement that has taken place in recent years in the egg size of our commercial breeds. And with the laying tests now demanding high livability as well

Presented at the Seventh World's Poultry Congress, Cleveland, Ohio, Aug. 1, 1939

as high production and good egg size for awards, I am sure that we can look for a great deal of improvement in the next few years along a line which is today of vital concern to poultrymen everywhere.

### Individual Records Were Stressed

Our early practical or trapnest poultry breeding was largely a race between breeders as to which could produce the highest individual egg records and the breeder who had the highest producing hen was considered to have achieved the most. Individual, rather than family records were the unit of comparison. While we "know better" nowadays, and while the exceptional egg producer is glorified today only in the advertisements in the poultry papers, I am not one to criticize those who dared to pioneer a new field. At a time when production was generally poor, when tendency to winter pause and broodiness characterized all breeds, it was indeed an accomplishment when a hen laid heavily for 12 or more months continuously without stopping or resting.

And this early type of breeding developed the mechanical instruments upon which our modern breeding depends, trapnests and practical systems of pedigreeing and record keeping. The system of breeding them practiced, although perhaps not wholesome as a permanent thing, did succeed in relegating to the junk heap other ideas and tendencies even less wholesome, such as the foolish idea that the best layers could be selected without the aid of the trapnest and that breeding was strictly an art and not a science.

We have learned a great deal in recent years regarding the mode of inheritance of many factors and characteristics that vitally affect the welfare of the commercial poultrymen. But we are not through learning. And the poultry breeder will serve the poultry industry only as he is openminded and willing to accept the new as well as to profit by the old. I have tried to regard myself as both a "conservative" and "progressive" on matters relating to poultry breeding. Our poultry breeding program has been based largely on family averages for many years, but I think that there is too much of a tendency today to consider this as the only method whereby progress may be achieved, and to look on progeny testing as infallible. As a matter of fact, progeny records, unless carefully studied and properly interpreted, may be misleading.

### High Yield and Mortality Unrelated

And I have little sympathy with the theory that breeding for high production and the use of 300-egg blood has been responsible for our rather high average rate of mortality today. I have been keenly interested in this theory for many years, but I find little if any indications that production breeding as such is in any way responsible for our main general causes of mortality today, or for that one-third or one-fourth of that may be said to be of an inherited nature.

I believe that if we are really determined to reduce our genetic type of mortality we will have to consider the problem from a more fundamental angle. As a matter of fact, since high production is closely linked with vigor and stamina, I am not so sure that simply by breeding farm nothing but high producers will in the end give us a very strong and a very dependable race of fowls. We have had on our own farm many 300-egg dams that gave practically 100 per cent hatchability over a period of two or three years, many 300-egg dams whose daughters averaged better than 250 eggs with practically 100 per cent livability, and I don't think it is wise at this time to be prejudiced against a hen simply because her record is high.

Professor J. C. Graham, formerly of the Massachusetts State College, gave what I consider a most forceful challenge to the practical poultry breeder of today, in summarizing the dependence of our commercial poultry industry on wise pedigree breeding programs, in the following language:

> "What of the next decade? Are we nearing a final goal? Are we reaching the limit of improvement even in any one factor on which we have been working? The answer is, of course, no. The results in the first stage of any endeavor are usually crude and lack polish. In the main, the mechanics of the automobile of 25 years ago is very much the same as that of today, but polish and refinement have made it a very different machine in appearance and action. Our further study and application of genetic principles during the next ten years should do the same with our egg machines. Greater resistance to disease should be developed. The high variability found in practically all factors and characteristics on which we are working must be reduced and greater uniformity secured . . . Why not have all birds in the same flock the same size, mature at the same age, lay the same number of eggs and of the same size and of the same quality throughout ; eliminate broodiness entirely and secure 100% hatchability of eggs and 100% livability in the laying house and so on through the entire list. Let us not say this is impossible."

If the poultry industry really wants progress along the lines indicated by Professor Graham, it will have to support pedigree breeding programs and the buyer of baby chicks will have to be willing to pay a reasonable price for the reproduction of superior stock and not expect too much when he pays only 7 or 8 cents for a baby chick. For the type of breeding work that the poultry industry needs is expensive, can be undertaken by only a relatively few poultrymen, and one of the greatest handicaps to breeding progress thus far has been that few pedigree breeding farms have been financially successful. The commercial poultryman in demanding stock for less than it is worth is only hastening the day when he will pay more than it is worth.

I may hazard the additional warning that unless commercial egg producers are willing to support with their money careful breeding programs to improve the vitality and livability of the White Leghorn breed, there is a possibility that this breed may soon be on the way out as an important factor in commercial egg production and will be replaced with either hybrids or new breeds. And resort to hybrids will only postpone our day of reckoning.

### Too Much Pullet Breeding

Reasons for the rather rapid increase in poultry mortality, particularly in the Leghorn breed, in recent years do not seem so complex when we consider that our system of mass reproduction has favored the very thing about which we are alarmed today. During the past 20 years probably 80 per cent or more of the commercially hatched chicks have come from young pullets in their first year of laying.

At the price of chicks and the prices which hatcheries are forced to pay for hatching eggs, there is little incentive for poultrymen to keep over flocks of old hens for breeding purposes, with the result that hatcheries have had to rely largely on pullet eggs for hatching. Thus, the fundamental laws of natural selection have been continuously ignored and contraverted generation after generation, and if we had attempted in a scientific manner to insure that our average poultry mortality would be high, we wouldn't have varied the progress or have succeeded any better.

Add to this the fact that we have formed the habit of pampering our pullet breeders and removing them from, rather than exposing them to, conditions that test their vitality, and it does not seem surprising to me that our general mortality today is quite high.

I have personally never favored pampering of future breeding stock. Our houses are practically wide open and protection consists chiefly of a roof. The pullets are on dirt yards every day in the year rain or shine. The young stock is reared on the same ground each year, and the range houses are never moved. We want our stock to be able to face a certain amount of danger, although of course we try to avoid highly infectious or contagious diseases. I don't believe in use of lights or anti-cannibalism devices or in doctoring sick birds.

Above all we don't want to fool ourselves. If a pullet makes a year's record of 250 or 300 eggs, we want to know that she has scored an honest run. Although carefully bred pedigreed pullets may be safer to breed from than some old hens not carefully bred and who may have lived long as individuals, but carry genetic defects they are sure to transmit to some of their progeny, we have tried to play safe and in the last 15 years have used only old hens in reproducing our own stock.

### 250-Egg Hens for Breeders

And since our own experience has been that high producers live longer and breed stronger stock than low or medium producers, we have not used in the past 10 years any hen in our own breeding, Barred Rock or Leghorn, with a trapnest record below 250 eggs. At all times we have practiced rigid individual as well as family selection. A large part of our culling is done without reference to the fowl's pedigree. We don't want sentiment to influence our choice of breeding stock.

Breeding cannot solve all of our present day poultry problems. The poultry industry today needs poultrymen as much as it needs breeders. But breeding alone can solve many of these problems and for this reason the practical poultry breeders of today have both a great opportunity and responsibility. We have made progress, but in reality our work is just beginning.

Practical poultry breeders can render a high service to the poultry industry if they meet and not evade the challenge its problems present.

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QUEEN MARIE of Jugoslavia, who first sampled smoked turkey in London, has sent an order for a supply to be dispatched to Belgrade by air.

—Feathered World, Aug. 11, 1939.

CHARLIE WYATT, who operates a country store and filling-station near Clarksville, Tenn., opened a case of eggs he had purchased, and found this message written inside: "Emma D. Tanner, Allison, Tenn., R. 1. Lonesome. Brown eyes." Wyatt got in touch with Miss Tanner, and after a whirlwind courtship she became Mrs. Charlie Wyatt . . . . thanks to a message written in a crate of eggs!

—Poultry Tribune, September, 1939.

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# Egg Auction Advantages and Disadvantages

By Charles Cane

Rosemont, New Jersey

*Condensed from a Talk*

THE first egg and poultry auction was started at Flemington, N. J., just nine years ago. The plan was a follow-up of methods used by fruit and vegetable growers in southern New Jersey for the selling of their produce. The general plan was originated by the late Alben Jones, then marketing specialist in poultry for the N. J. Department of Agriculture. His plans and methods were so complete that few changes have been made since the time of organization. At the present time through the Northeast, including Ohio, there are 24 successful auctions which last year did a gross business of over ten million dollars in poultry and eggs.

### Has Improved Quality of Eggs

The real advantages for the producer are that he receives the exact amount paid for his eggs minus the selling charge, in most auctions about 1 cent a dozen for eggs graded for size at the farm. An additional charge of about 1½ cents a dozen is charged for the re-grading at the market. It has been a real incentive for the producer to put up a pack that is in demand by the buyers as each sale is identified by a lot number assigned to each producer.

When the auction first started it was quite a game with many producers to check with their neighbors to see who received the higher bids and in that way they discovered many mistakes in their packing, feeding, management and stock; and I do not believe that any other one thing has helped more to increase the quality of birds kept on farms.

The prices received before the starting of the auction markets varied in different communities, but I believe that many were similar to those in Hunterdon County, N. J., where producers depended on hucksters coming to their farms or shipped direct to commission men in New York City. The average price returns were about 5 cents below the market quotations. The returns received from the auction market rarely go below the New York quotation and oftentimes as high as 10 to 15 cents above.

### Has Helped Non-Auction Members

The market has also helped producers who do not sell over the block as the individual buyers who now go to the farms pay the auction prices and the returns to their producers would average higher than from the quotations formerly used.

Another real advantage is that there is no risk of a producer being defrauded by bad checks or nonpayment as the auctions are very careful about credit given their buyers, receiving only cash or certified checks from any doubtful purchasers.

Buyers can afford to pay more per dozen for their eggs at the auction because they are sure of getting the

Presented at the Seventh World's Poultry Congress, Cleveland, Ohio, August 5, 1939 number of cases and quality of eggs their trade demands, whereas, before, they had to take the entire output of producers from whom they purchased. This gave them an over-supply at certain times and at other times a shortage. They also have the auction's reputation to back up eggs purchased there, as all eggs are inspected for interior quality and labeled according to the grade shown.

The great variety of buyers attracted to these markets includes the producer having a small flock and a retail egg route, retail grocers, egg route men, chain stores, and, during the flush season, commission men.

### No Contracts Need be Signed

A factor that has appealed to the producer is that it is unnecessary for him to sign any contracts and it is entirely up to him whether he sells all or part of his eggs at the market. This, seemingly, has not been a hardship on the auctions, because the volume of eggs has been uniform, of course, varying during the flush seasons of production.

The membership fee is very reasonable, being from $1 to $5 a year. The entire management is under the control of producer directors elected by the membership. This, I believe, tends for more confidence of the producers. Also, any profits over and above operating expenses and a reasonable reserve are distributed back to the producer in proportion to the volume of business he has done with the market.

The close association producers have at the markets tends for a better poultry community and makes for a central meeting place for educational meetings and social affairs. Much credit for the success of this form of marketing must be given to the extension service and departments of agriculture in the states in which they operate. There is a real opportunity for close cooperation between these two state agencies, with the bureau of markets supervising the sales and the county agents working for better quality and production among the producers.

### Some Auctions Also Handle Poultry

Many of the auctions are now handling poultry and, I believe, doing just as satisfactory job for the producers as the marketing of their eggs. In most cases, the smaller farms were selling to hucksters while the larger producers delivered or shipped to city markets, where returns were, in most cases, considerably under market quotations. Oftentimes sales would be made to hucksters at most any price in order to dispose of surplus broilers and fowl. It was the unusual producer who knew what his birds really were worth. The auctions have not only helped in getting a higher net return, but have also made available a place each week where the producer knows he will receive the top price for the quality of stock he has to sell. Through the publication of prices in local papers, he is kept in touch with the value of his product.

It has also made possible the development of the broiler, roaster, capon and turkey business so that the farmer or smaller poultryman can depend on a more regular income during the year.

The cost of auction selling, as shown by a survey of the U. S. Department of Agriculture, shows that 4.4 per cent of the gross receipts were retained by the markets. From this, all costs were paid, and in most cases a nice surplus was shown.

### Disadvantages of Auctions

I do not believe that auctions are likely to show the best results if located too far from centers of population. Furthermore, they should be located in producing areas. The volume of eggs must be large enough to attract quite a number of buyers. At least 200 cases a week should be the minimum for the start.

There is a disadvantage in having too many markets located in any given area as it would lead to competition among the markets and a thinner distribution of the buyers.

A lot depends upon the directors elected for the management, on their ability to use good business judgment, so that producers and buyers will have confidence in them. The key man of the market is the auction master, who in most cases has full responsibility under the supervision of the board of directors. He is really the contact man for both the producer and the buyer and must have exceptional ability to do the right kind of job.

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## Green Feed in the Turkey Ration

There is an old Scotch proverb, "The eye of the master fattens the cattle." One does not have to handle turkeys to tell when they are doing well; the feather quality and sheen tell as much as the appearance of the hair on feeding cattle.

Then there are the other type of flocks, too many of them this year, it seems, when again a first glance tells the story. Dull, brittle, broken feathers, many of the birds but poorly feathered out, show all too plainly that something is lacking in both the ration and the management. Tracing it down, we find most of these rough-looking flocks are not getting enough green feed.

According to some of the latest developments in poultry science, the ideal green feed for turkeys—or any other poultry for that matter—would be young, green, growing cereals. The alfalfa people might dispute the point with that statement, perhaps justifiably so. We are not prepared to say. But what we want to drive home is that young and growing cereals, grasses, even weeds of sorts, are what these turkeys need.

How are you going to get fresh greens on a dry farm that hasn't known rain since April? Use alfalfa; ground alfalfa hay, dehydrated alfalfa meal, alfalfa leaf meal—some form of alfalfa. If it grows in your neighborhood it will cut the cost of your ration; if it doesn't it may raise feed prices a little, but you must needs have some feed of this nature and alfalfa is most generally available. Whether to feed ordinary ground hay or the higher priced leaf and dehydrated meal depends largely on your price situation.

We doubt if it is possible to get too much alfalfa into a poult once it is on the range; there is no limit to the amount you can use, so long as the turkeys will eat it. Naturally, it is a supplementary feed, with the mash and scratch in front of the birds all the time. One Utah grower stepped his growing mash up to include 20 per cent alfalfa—and liked it.

Alfalfa is not a cure-all; it alone will not stop feather picking—another result of too little green, not enough fiber—but it helps a lot. Perhaps your turkeys will not need much alfalfa hay if they are running in a sudan grass or alfalfa pasture, but a lot of us feed it just the same.

—Norbest Turkey News, Aug. 1939.

# POULTRY RESEARCH

## Expeller and Solvent-Extracted Soybean Oil Meal Compared

Toasted solvent extracted soybean oil meal was comparable to the expeller meal in feeding value for chicks, according to R. M. Bethke and M. C. Sweet, Ohio Experiment Station, in the Ohio Bi-Monthly Bulletin, July-August, 1939.

In the ration where toasted solvent extracted soybean oil meal was the only source of supplemental protein, there was evidence of a vitamin K deficiency, the anti-hemorrhagic vitamin, in a few of the chicks.

The inclusion of 5 per cent dried skimmilk in the ration resulted in significant increases in growth, and further replacement of part of the soybean oil meal with meat scraps and fish meal gave additional growth increases.

## Vitamin A Storage

Vitamin A reserves are stored by the chick in its liver. Hence, generally speaking, the more vitamin A and provitamin A is provided in the feed, the greater are the amounts stored in the chick's liver. Nine out of 24 flocks had at least one chick which had no vitamin A reserves in its liver, as reported (Poultry Science, Vol. 18, No. 5) by M. Rubin, H. R. Bird and H. M. DeVolt, University of Maryland. Although liver storage of vitamin A is generally assumed to be governed by the vitamin A content of the feed, the authors take cognizance of the well-known phenomenon of secondary vitamin deficiency, because even on an adequately fortified diet, there is the possibility that vitamin A liver storage may be affected by environmental conditions other than the ration fed and by pathological conditions which have as yet been undetected.

—Carl H. Schroeder, Everybodys Poultry Magazine, Oct. 1939.

## Comparison of All-Mash with Mash and Grain Rations

An all-mash ration, even though supplemented by pellets, gave significantly lower egg production, higher feed cost per bird and per dozen eggs, and a materially lower return above feed cost per bird, among both Rhode Island Reds and White Leghorns, than a scratch grain and laying mash ration supplemented with pellets, in a test conducted by Clarence E. Lee, S. W. Hamilton, C. L. Henry and M. E. Callanan of the Beacon Milling Company and reported in Poultry Science for September, 1939 (Vol. 18, No. 5).

The investigators found that the average eggs per bird over a 10-months period for the combined groups of Rhode Island Reds and White Leghorns fed mash, grain and pellets was 169.69 eggs, compared with 157 eggs for the combined groups of Reds and Leghorns fed an all-mash ration supplemented with pellets.

## Response of Laying Hens to Sudden Feed Changes

Suddenly changing the feed of layers did not reduce egg production during the first month after the change, nor did it cause the birds to molt in a test conducted by G. R. Sipe and H. D. Polk at Mississippi State College, reported in Poultry Science, September, 1939 (Vol. 18, No. 5).

Slightly lower egg production during the second month after the feed was changed appeared to be due to the cycle of production. Annual average production of layers subjected to four sudden changes in feed during the year was 157.7 eggs per bird, compared with 136.2 eggs per bird for four comparable groups of layers with feed unchanged.

## Oats and Cannibalism

Does oats prevent cannibalism? A continuation of previous work was reported (Poultry Science, Vol. 18, No. 5) by Gordon E. Bearse, V. L. Miller and C. F. McClary from the Western Washington Experiment Station. These investigators feel their work justifies the conclusion that oat hulls and oat hull fiber tend to reduce the severity and incidence of feather picking and cannibalism.

On the other hand, E. J. Sheehy of University College, Dublin, Ireland, presented a paper in the scientific session of the 7th World's Poultry Congress at Cleveland, in which he states that "oats, with a fiber content similar to that of bran, does not inhibit this vice." He further concludes that "bulk in the form of wheat bran or beet pulp is a factor in preventing feather picking and cannibalism."

Such differences in opinion indicate the need for further investigation. Probably, as in many such cases, it is not a question of one being right and the other one being wrong. When all of the facts are available often both sides are right.

—Carl H. Schroeder, Everybodys Poultry Magazine, Oct. 1939.

## Supplementary Heat in the Laying House

Supplementary heat in an insulated laying house at the Beacon Milling Company's research plant at Cayuga, N. Y., resulted in lower annual egg production, slightly lower feed consumption, occasionally lower litter requirements, and a consistant lowering of net flock income. This work was carried on by Clarence E. Lee, S. W. Hamilton, C. L. Henry and M. E. Callanan, and was reported in Poultry Science for September, 1939 (Vol. 18, No. 5).

It was found that over a period of 10 months, the difference in favor of the birds not receiving heat amounted to 15.3 eggs for Leghorns and 14.8 eggs for Rhode Island Reds. Egg production in heated houses was lower in every case, regardless of breed or type of ration used.

Leghorns not receiving heat made a net income per bird of 42 cents more than Leghorns receiving heat, while Rhode Island Reds without heat showed a net income advantage of 33 cents per bird over Rhode Island Reds getting supplementary heat.

Average egg weight was not decreased by the moderate use of artificial heat.

## Social Rank Among Chickens

The social order in the poultry flock has, for many years, attracted the attention of investigators interested in problems of animal psychology. In this country, W. C. Sanctuary at the Massachusetts State College did the pioneer work of checking and verifying European observations (Poultry Science, Vol. 18, No. 5). Many phenomena in the flock find their explanation in the "pecking order" by which the individual flock members raise, lose or maintain their "social rank."

The struggle for social recognition explains why certain well-developed laying pullets go out of production and into a molt soon after housing. A social order exists in flocks large and small and re-adjustments take place continuously.

"Personal" grudges, vindictive reprisals, political favors, which can be observed in this battle for social prominence, have an influence upon sexual maturity, that is, age at first egg, and may retard it in some instances by weeks or even months. Introducing strange birds into the pens may cause a reorganization of the "pecking order" and cause slumps in production, fertility and hatchability.

—Carl H. Schroeder, Everybodys Poultry Magazine, Oct. 1939.

## Selection for Resistance

Selection for disease resistance and susceptibility was practiced for a period of 8 years at the Western Washington Experiment Station. Selection of the "resistant" and of the "susceptible" line was based upon family performance, particularly as regards leucotic and allied diseases. Observations covered the two laying years after the pullets came into production. No culling was practiced during that time.

First laying year losses were reduced from 85 to 35 per cent; the susceptible lines changed from 74 to 53 per cent. A control line from a prominent breeder introduced in each of the last 3 years showed an average loss of 54 per cent, against 56 per cent for the susceptible line and 35 per cent resistant line. The average days of survival increased with the resistant line from 270 to 478 days; from 183 to 374 days in the susceptible line. The susceptible line reached maturity somewhat later and hatchability was somewhat lower. Gordon E. Bearse, C. F. McClary and M. Wayne Miller, the authors, also report, (Poultry Science, Vol. 18, No. 5) slight differences in other respects, such as number and size of eggs, body weight, etc.

C. H. Bostian and R. S. Dearstyne at the North Carolina Experiment Station studied (Poultry Science, Vol. 18, No. 5) another angle of this mortality problem. Appraising the survival rate at 500 days of age for families comprising at least 6 pullets, they found 6 families with 100 per cent survival; 24 with more than 80 per cent and 17 below 70 per cent. Similar results were obtained during the subsequent year (1938). The data demonstrate definite family differences. Families of superior livability came into production earlier and laid more eggs. Earlier hatched pullets had a greater survival rate.

—Carl H. Schroeder, Everybodys Poultry Magazine, Oct. 1939.

## Relation of Clutch Size and Place in Clutch to Hatching

Eggs laid in clutches of two to six eggs in a clutch are more fertile and hatch better than eggs laid in single egg clutches, indicating that heavy producers, laying eggs day after day in multiple egg clutches, produce eggs which are best for hatching purposes. This conclusion was made by E. M. Funk of the University of Missouri, and reported in Poultry Science for September, 1939 (Vol. 18, No. 5). The position of the egg in a given clutch was not found to be related to fertility or hatchability.

Eggs laid by the same hens were found to be more fertile and hatch better if they are laid in multiple egg clutches than in single egg clutches.

## Detecting Fertility

Detection of fertility in fresh eggs has been the dream of every incubator operator. Some years ago a Russian investigator reported a difference in the bio-electric activity between fertile and infertile eggs prior to incubation. Alexis L. Romanoff and Casper L. Cottrell at Cornell University used the same principle in attacking the problem and report (Poultry Science, Vol. 18, No. 5) significant differences in radio frequency conductivity between fertile and infertile eggs. At present these findings are only of scientific value, but improved methods and refined apparatus may some day render them applicable for practical use.

—Carl H. Schroeder, Everybodys Poultry Magazine, Oct. 1939.

## Carbon Monoxide Poisoning in Poorly Ventilated Houses

Carbon monoxide gas in the brooder house, resulting from improper combustion from stoves operated in an atmosphere of too little oxygen, can cause serious losses, according to experimental results obtained by George W. Stiles, Denver Pathological Laboratory of the U. S. Bureau of Animal Industry, reported in Poultry Science, Sept., 1939 (Vol. 18, No. 5).

When 30 chicks were exposed to 0.4 per cent carbon monoxide, the first death occurred after 79 minutes. After 162 minutes, 22 chicks had died. Chicks that die from acute carbon monoxide poisoning show cherry-red lungs. Gassed birds often recover when moved into fresh air. Mortality stops when there is sufficient ventilation.

## *Mash Hoppers on Roosts*

One dislikes to think of having to pamper birds to achieve best results. But isn't feeding birds a close parallel to religion? Every one is trying to get there, but by many various routes.

You've undoubtedly noticed that when pullets are first housed (or are considering taking a rest) that they have a tendency to sit up on the roosts the majority of the day. They usually come down for a little grain or pellets at night. These birds need mash as well as grain and it is mash that they fail to eat if they sit on the roosts all day.

What then? Chase them down? No—bring the feed to them. Place a small hopper of mash on the roosts all the time. The offending birds will consume a surprising amount of mash in this way. It will enable old hens or molting pullets to recover more rapidly, will help to prevent or postpone temporarily a premature molt, and will frequently help smaller, younger or more backward pullets.

—Poultry Item, Oct. 1939.

COLORADO farmers living near sugar factories, the American Poultry Journal reveals, have discovered that waste lime obtained free from these places makes fine hard-surfaced floors.

# Hatcheries as the Center of All Community Poultry Interests

By L. Harris Hiscock
Skaneateles, New York

*Condensed from a Talk*

A HATCHERY cannot help but be an asset in any community. Aside from the capital invested in its plant and equipment, it affords employment for those in its vicinity, it stimulates business activity by its expenditures, and it advertises the community by the sale of its products.

But aside from these advantages to the community, the real leadership of the hatchery will be found among the nearby farmers and poultry people. There are many responsibilities to these people and they range all the way from disease control to social entertainment. Our greatest responsibility to those we serve, however, and even our future success rests especially on two sound programs: disease eradication and sound breeding principles.

When a hatchery ceases to render real service to its community, when it ceases unselfishly to work for the good of the poultry industry in its territory, it not only is missing a great opportunity, but is bound to fail. Our very existence is dependent on the kind of education we are supplying to an ever attentive audience. For this very reason there is no greater influence in the poultry industry today than the hatcheryman.

## Hatchery Responsibilities Increase

With such ideals as these the hatchery industry can safely face the future. Probably the expansion period in our trade is definitely drawing to a close, an expansion which saw the setting hen of 25 years ago replaced today by an incubator capacity of 400,000,000 eggs in 1939. But with the close of this great expansion epoch, the community responsibility of the hatchery has increased; we are truly facing new frontiers. Added to our community responsibilities we are now face to face with national responsibility which involves an important part and also interest in legislative channels of the state and national governments.

It was indeed a significant milestone last winter when President Gregerson of the International Baby Chick Association set up and organized state legislative committees to defend the hatchery against unfair and unjust legislation proposed by members of Congress. I believe that the time has come when we have not only grown up but when we can organize ourselves into a most efficient legislative body. At the same time I abhor the thought of lobby. Let me remind you, however, that it has never been the policy of the poultry industry to seek unjust legislation. Let me remind you further that, if the hatchery is a true community center and also is willing to carry responsibility nationally, we can speak with a voice that must be heard when we are morally and justly right.

Presented at the Seventh World's Poultry Congress, Cleveland, Ohio, Aug. 4, 1939

Not all our problems are so simple. I am thinking particularly of the consumption of our product; day-old chicks. Doubtless many of you have already read that excellent article by Termohlen and Warren in the July issue of Hatchery Tribune on "Trends in the Hatchery Industry" (Poultry Digest, July, 1939). These men cite the fact that the population of this country is not far from its peak and that the average production per hen in this country is on the increase. This all means a greater flooding of our markets with eggs and poultry — a condition which may be even further aggravated it seems to me by a reduction through research of heavy annual mortality in our flocks and chicks.

Such facts as these cannot help but bring us face to face with our grave responsibility in the future economic welfare of the industry. If we fail to realize this great moral responsibility, if we fail to control this great, unending source of supply, we are taking the road toward chaos and demoralization. Let us, therefore, accept our full responsibility as community centers and with united energy face with the utmost courage our just responsibilities in the future economic welfare of a national poultry industry. We must limit our production to meet our actual demand for chicks. We must do everything we can to stimulate the consumption of eggs and poultry.

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# *Blue Backs in Turkeys*

"Why do I have so many turkeys this year with 'blue backs?' This condition (whatever causes it) takes away from the appearance of the dressed carcass. It's harder to sell the birds and I am forced to take a lower price. I should add that most of this trouble is in early poults."

The above was received from a grower a short time ago. Here is an explanation of the cause of the trouble and also suggestions for overcoming it.

You will note that the grower said that most of the trouble was in early poults. The birds, due to the fact that they were hatched early, were raised in confinement. In fact, they were off the ground up to a short time ago.

The birds started picking and pulling feathers some time ago. I think this vice accounts for "blue backs" that are now present. In other words, the picking of the pin feathers just as they were coming through the skin killed the feather. The black color or "ink" that was in the feather remained. This caused a "blue back" condition.

It can also be caused by other bruises that would crush the pin feather when it is young and full of dark sap.

Now, what can be done about it? We have had very little success in curing it after it is once present. However, the following may help:

1. Put the birds outdoors. This will help to control picking. No doubt the blood stream, in time, will absorb and correct the discoloration.
2. The condition will normally improve as the birds get more fat in their skin and more covering over their backs.
3. The use of oil of pine or tar may prevent picking.
4. Hen Specs or Pikgards may help.

—Vermont Extension Service Letter, September, 1939.

# Practical Health Control Measures in Poultry Husbandry

By J. R. Beach
University of California
Berkeley, California

*Condensed from a Talk*

A "PRACTICAL control measure," I would say, is any measure which it is necessary to employ to control disease.

Not so long ago, poultrymen in general considered it an entirely impractical procedure to attempt individual treatment of any kind of a flock. That does not stump them now; they will give individual treatment to several thousand birds in a few hours. It is all a matter of a change of viewpoint and of trying something which was once considered to be entirely out of the question. In the long run, it may be a matter of choice between trying something or going out of business.

The disease control measures may be roughly grouped into two classifications—specific measures for specific infectious diseases, and more general measures which would come under the general heading of sanitation, which applies to all.

### Specific Disease Control Measures

Let us first consider briefly the specific disease control measures. Among the biological products there are just two— chicken pox vaccine and laryngotracheitis vaccine — of proved merit.

Then we have the diagnostic disease tests with which you are all familiar. These are the tests for and the eradication of pullorum disease, blood tests, and the tuberculin test for the diagnosis of tuberculosis.

In the line of medication, we have still one more possible line of attack. We must restrict ourselves to preparations combatting round worms and tapeworms.

### What Is Sanitation?

Let us go on to the sanitation aspect of disease control. In its broader aspect, sanitation is defined as providing a safe place in which chickens may live or providing them with a fully safe environment. More specifically, we may say that it is protecting them from undue exposure to infection and parasites.

The effective application of sanitary measures must be based upon knowledge by which infection and parasitism are spread from fowl to fowl or from pen to pen on a farm, how this is perpetuated on a farm from year to year, and how this is introduced on a farm for the first time.

These various factors are quite different for different diseases—that is, we may have transmission from one bird to another or from pen to pen on a farm by birds actively infected at the time, or it may be by birds that have recovered from parasitic infestation, but which continue to carry the disease-producing agent.

We have latent carriers of infection which are somewhat in the category of the healthy carriers — that is, chickens with such a low grade of disease that it causes little trouble and thereby escapes notice. This is particularly true in respiratory infections.

Presented at the Seventh World's Poultry Congress, Cleveland, Ohio, Aug. 2, 1939

### Mosquitoes Spread Fowl Pox

We have insect vectors to consider: flies and mosquitoes. Certain diseases are known to be actively spread and transmitted by such means. In districts, for example, where mosquitoes are very plentiful, the problem of fowl pox control is increased because of the spread of this disease through means of mosquitoes. In the Hawaiian Islands they have to resort to raising their chicks in mosquito-proof pens. Day-old chick vaccination is practiced over there on that account.

In many cases it is extremely difficult or impossible to determine a means by which a disease was introduced or carried from one place to another.

The sanitary procedure must meet the situation for which it is to be used —that is, to cope with the disease which is the present problem. The separation of young birds from the old may be of great importance in controlling a disease or preventing its spread by maintaining proper cleanliness.

### The Place of Sanitation

Cleaning and disinfection are usually adequate, if properly done, to make a building in which an infectious disease has occurred safe for further use, but that is not universally true. We have some producing agents, such as the coccidia and the virus of fowl pox which are so resistant to the action of disinfectants that would ordinarily be used that one cannot rely upon removing such infection from a house by cleaning and disinfection. In this case, removal by means of cleaning is of really more importance than the application of disinfectants. That is why, in a cleaning and disinfection process, the cleaning is the part to emphasize more than the disinfection. The two are complementary, but of the two, the thorough mechanical cleaning is the more important.

Of greatest value in cleaning the yard is sweeping up the surface dirt in which the contamination would be most concentrated. This should be hauled away.

The only additional thing that could be done of benefit is to put the yard out of service for a period of time. Attempting to disinfect a yard is rather a difficult undertaking.

### Prevention of Diseases

There are a few general principles which will apply and, barring accident, will be effective in keeping disease from a farm that is free from infection.

The first of these is bringing to the farm or replacing or adding to the flock only by means of hatching eggs or baby chicks, never bringing in adult or partly grown birds unless you are absolutely certain that the birds you are bringing in come from a place that is just as clean as yours. There has been a great deal of regret resulting from introducing adult stock. This applies to breeding males as well as to females.

### Don't Bring Back Contest Pens

The second is not to return to a flock birds that have been at contests, shows, or fairs, unless they have been held under strict quarantine for a period of at least a month.

### Keep Visitors Out of Poultry Houses

The third is not to encourage visitors —in fact, don't allow visitors around your poultry houses. It is all right to be sociable, but your visitors do not have to become intimately associated with your chickens. Let them view the chickens from a distance, but they do not need to tramp through your pens.

Laryngotracheitis was introduced into our Station Flock at the University of California by visiting poultrymen. Since then we have found it necessary to offend a great many visitors, because we would not allow them free access to the experimental pens.

### Shipping Coops Source of Danger

I would refer also to coops that are used to take fowls to market, particularly the coops of poultry buyers. Keep the buyers in the front yard and carry your chickens out to them instead of letting them take their coops into the chicken houses.

### Be Careful with Vaccines

Another precaution is in regard to the use of laryngotracheitis and fowl pox vaccines. You must realize that when you use these preparations, you are using the virus which produces the disease. In other words, you are deliberately introducing this infectious material to your farm. You must realize further that after you do it once, you will probably have to continue to vaccinate your birds annually.

In a congested poultry district where these diseases are prevalent, the chances are more than even that your flock will become infected if you do not give them this protection.

On isolated farms that does not follow. You should give grave consideration to the matter before you vaccinate for the first time, even if you have the disease on your place. Before deciding to vaccinate, think first if it would not be better to get rid of the disease for all time or at least probably for several years. If you are isolated, you can observe some of the precautions which we have already discussed. That may require the complete depopulation of the farm in order to get rid of the healthy carriers, the recovered birds which would perpetuate the infection.

### Cleanliness is First Consideration

In the prevention of spread on the farm from fowl to fowl or from pen to pen, the first consideration, of course, is general cleanliness and sanitation. An effort should be made to keep down flies and mosquitoes. It is very important and oftentimes absolutely essential that these be controlled if the disease with which you have to contend is to be controlled.

### Keep Old and Young Apart

There should be separation of the young from the old, at least, throughout the first laying year, to permit neither direct nor indirect contact.

If it is possible, different attendants should care for the young pullets and the older birds. If that is not possible, taking care of the young birds first will help. In making your rounds, always go first to the younger birds, letting the older birds wait until later.

If, in spite of this, you have a disease which is perpetuated from year to year by healthy carriers or latent cases and you have no other means of control, unhesitatingly, I would say, resort to depopulation as a means of getting rid of it. In the long run you will be money ahead. It may seem like an expensive procedure at the moment, but it is much cheaper than losing a considerable portion of your birds each year from such recurrent disease.

The procedures as outlined, if carefully followed, will serve to handle in a fairly satisfactory manner the various known infectious diseases existing today, but I do not want you to understand me as stating that they will solve the mortality problem. Unfortunately, such is not the case.

There is a variety of disease manifestations which fall into the general heading of paralysis. We do not know enough about this disease yet, but it is perhaps responsible for from 30 to 40 per cent of the poultry mortality of the United States at the present time. The measures which I have outlined have proven to be ineffective against it.

### "Normal Mortality"

We have a large list of pathological conditions which are of unknown origin. These are the pathological changes which interfere with normal physiological processes. Losses of this type, I believe, are still referred to as "normal mortality." I would consider it a decidedly abnormal mortality as far as the amount is concerned.

More than half of the poultry dying in the United States at the present time are not dying from infectious diseases or from parasites; they are dying from these non-specific pathological conditions which are not related to infectious parisitism. They are probably related to genetics, nutrition, environment, or some such factor.

The greatest progress that we may expect or hope for in the future in regard to further reduction in poultry mortality is an understanding of the underlying causes of these non-specific pathological conditions of poultry and of a means by which they may be avoided.

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## *Poultry Manure and Flies*

Where manure piles cannot be eradicated by frequent scattering on the land, it is possible to reduce fly reproduction by treating them with inexpensive chemical solutions, says H. E. Cosby of Oregon. U.S.D.A. has found the use of powdered hellebore to be effective. One-half pound of powdered hellebore is stirred into 10 gallons of water and allowed to stand for 24 hours before using it to sprinkle over the manure at the rate of 10 gallons to each 10 cubic feet of the refuse materials. The solution itself is somewhat poisonous but chickens are not injured by pecking over the treated material.

Powdered borax has also been found effective as a larvicide. Non-poisonous, non-inflammable, inexpensive. Use ¾ pound to 10 gallons of water, sprinkle over manure same as hellebore treatment.

—Pacific Rural Press, Sept. 23, 1939.

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❝ THE black-out is providing a heaven-sent opportunity to poultry thieves in many parts of Scotland. Formerly lights could be used to keep the runs under surveillance, but with the black-out being rigidly maintained little can be done, even where dogs set up a warning.

—Poultry World, London, England, Sept. 22, 1939.

# Diary of a Poultryman

By P. S. White
Egg Farmer, Wayne County, Ohio

***Condensed from Everybodys Poultry Magazine***

**Oct. 1**—This is really a bad time of the week to start anything, but Kid White and I have been talking things over and we have decided that we should build a tenant house.

This tenant house is really an investment in more ways than one, probably the greatest of which is rental. Out of several books of plans, we have selected one which we think will suit our needs best. Howard Cobbler, local contractor, will build it. The house will be a six-room bungalow with a full basement.

**Oct. 3**—Howard and Paul Funk, the mason, stopped by this morning and staked off the foundation. The house will be 22 x 30 outside measurements. It will be necessary to excavate about 3 feet and then grade the soil around the wall. Ralph Howman and Dave Mast, two of our farmer neighbors, brought two teams, scrapers and a plow over and started excavating immediately.

**Oct. 4**—Pullet eggs are increasing in volume on the auction. It is surprising how much extra work it takes to handle such a mixed production. Those producers who have only one or two cases a week cannot do very much grading. About all they can do is to put the eggs in the cases and let the auction boys grade them. Such mixed cases are known as "pool cases" and the producer gets the pool price for each grade he has represented. This also involves a tremendous amount of extra clerical work, for every egg has to be accounted for.

**Oct. 5**—Hot and dry, well, I guess yes. It is just so hot that pullets are far better off on the range than they are in winter quarters. I might be losing a few eggs, but it is a sure thing that sitting out in a tree about 30 feet from the ground is much more comfortable than standing up on a perch panting and with the wings-outspread. In the long run, I think I will be ahead to let Nature take her course. I used to get all "het" up when things didn't run absolutely according to Hoyle. But I am getting away from that as I get older and I try to work more with Nature than against.

It is rather difficult to reconcile this statement with the fact that the old hens are getting the works every morning about 4 o'clock with a bunch of bright lights. But when one is engaged in the chicken business, one isn't supposed to be any too consistent.

**Oct. 6**—It seems to me that it was only a few days ago that we went all through the old hens and selected the ones that should have been profitable to retain for another year. Yet last night, Donnie and I went down through the houses and picked up a coop full by flash light.

**Oct. 8**—There has been a good bit accomplished this week. Harold and I have finished painting the east house; the sash had the last coat today. Paul Funk and his boys have finished laying up the wall for the tenant house. That is they have their work far enough along so the carpenters can start Monday. The basement floor, chimney, cistern and concrete steps will be done later.

There is plenty of work to do around the ranch while we are waiting for the weather to turn colder. In the meantime, the pullets are still roosting in the trees at night. During the day, they loaf around in the woods. Grain consumption isn't any too heavy on account of the warm weather.

**Oct. 10**—For a change, it is nice to work under a boss. All I have to do is what I am told to do. Howard Cobbler is the boss carpenter on the job; he is the one who takes the responsibility. All I do is carry lumber and drive nails.

**Oct. 11**—It is an awful good policy when there is extra work to do as we have now not to overlook the great basic fundamental principle; that is, that the money to pay for all these things comes from the stock and that the stock must not be neglected. I gather the eggs and wash the fountains and Harold does the feeding and takes care of the cows. In this way, there is one of us on the construction work all of the time.

That varmint worked on a pullet last night. I wonder if I will have to go on a night shift again?

**Oct. 12**—Along about this time of the year, I usually begin to get on pins and needles about bringing the pullets in from the range. But I am still afraid to move them inside on account of the warm weather. It is too warm for them in the houses and I am also afraid of that old pick-pick business. That's bad.

The three north houses are all ready for the pullets. All that is necessary to do is to put mash in the hoppers and turn over the water fountain floats. The legbands and vaccine are on the ranch. As usual, the legbands will be hog rings and will denote age. When a hog ring is clamped on a leg, it stays put. In fact, it takes a lot of fire even to burn it off.

**Oct. 13**—During the past week, we have been able to pick up a coop, 15, of cockerels out on the range. Two or three had come in the houses to do a little dusting when some of us happened around and shut the chick door before they could slip out. The most effective method of catching them was picking them up with a hook around the hoppers at feeding time. If we could just catch one and get him to squawking real loud, about half a dozen hot-blooded fellows would rush to the rescue. They would throw all caution aside and rush in where angels should fear to tread. But it didn't take them long to realize they were playing a losing game.

**Oct. 14**—There is enough weight on the walls of the tenant house to justify filling in around them. All of the outside framing material is in place and we have started to apply the matched sheathing.

It has always been my contention that some of the seepage in a basement could be eliminated if the soil was tamped around the walls instead of just letting it settle. Anyway, we are giving the theory a practical test out, for the tamping is as tight as around a corner fence post. It should pay some kind of a dividend, for it takes many times as long to do it as it would just to shovel the dirt in promiscuously. Working around the house will be much easier after the grading is done.

**Oct. 17** — The Old Man is getting scared. I am just afraid the weather

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is going to break and the long arm of fate will reach out and slap me. I am still uneasy about the pullets. It is getting time that I started to move them to laying quarters. And the grading around the house isn't done. In fact, it hasn't been started.

**Oct. 18**—I am going to have to let up a wee bit. It isn't possible for me to help take care of the stock and help do carpenter work and help here and help there all day and then pack eggs until other people are thinking about getting up. To grasp a hammer as hard as it is necessary for me to in order to drive nails cramps my hand to such an extent that my after supper egg packing is slowed down at least 50 per cent. In other words, it takes me about twice as long to do the packing. What I gain on one end of the equation, I lose on the other. To err is human.

**Oct. 19**—My return load from town yesterday was three 4-inch iron pipes for column supports in the basement. They will set on a piece of concrete road berm 30 by 30 inches by 8 inches thick. Such a support ought to carry several times the weight that is required. But all such monkey business has caused us to run out of feed, so I had to make two trips today. The first trip was for corn, and the second, a combination of growing mash and empty egg cases. And I feel like I am getting further behind with the work each day.

**Oct. 21**—I simply had to take time off to do some necessary work. We were getting low on supplies again, corn, oats and excelsior for the nests. Had to make two trips to town. A little half-ton truck is a great institution to cover territory, but it doesn't haul very big loads. The idea is to never get behind with the hauling, but that is exactly what I have done with all of this construction work.

I can't understand to save my life what possesses these old hens to jump in a nest and throw all the nesting material out on the floor. It wouldn't be so bad if it were just one nest or in one house, but there is an epidemic all over the ranch. But I have replaced nesting material before, and I guess I can again.

**Oct. 22**—No dropping boards were cleaned this week. I think that by Monday or Tuesday of next week, the grading will be in such progress that we can start preparing for the lawn-to-be. Then the dropping pits in the block house will be cleaned and the proceeds cultivated under with the little tractor.

The lawn will contain around 3,000 square feet. I figure that six tons of droppings from the boards and the pits will be enough. This will make an application of 4 pounds to the square foot which is a good coverage. But the application will be made on pure clay and no seeding will be done until next March or April. The idea is to get this heavy application of manure on the soil and get it incorporated with the first 3 or 4 inches.

**Oct. 26**—It seemed like yesterday that we were vaccinating and banding pullets preparatory to putting them in the laying houses. And just like clock work, we started in on the job today. Last night, Donnie closed the three round brooder houses and No. 1 and 2 in the woods. There were 205 birds roosting in them, and these were soon given the works. Each one gets a hog ring for a band and a shot of vaccine on the leg. I say on the leg, for we are using pigeon pox strain again this year. There hasn't been a case of pox on the ranch since I have used the pigeon strain, so I can't see the necessity of changing vaccines.

**Oct. 27**—Well, we picked up 231 pullets in No. 3, 4, 5 and 6 houses, gave them the works and distributed them in the three north laying houses. Then Harold and I went back to carpentering and concrete work.

We are grading the pullets into "tops," "seconds," and "not-so-good." The "tops" are laying, but the vaccination won't stop them, at least, it never has. The "seconds" are mighty good birds, big frames, well fleshed, but not much comb development. The "not-so-good" grade are just not quite so good now. Segregated, in a short time, they will be about as good as any. Oh, yes, there are a few market birds, but they are rather far between.

**Oct. 28**—About 200 pullets a day seems to be our capacity. And this has its advantages in a big way, too. Probably the greatest factor is that the laying houses fill up slowly. The old timers in the house can then show the newcomers where the feed, water and the perches are. New pullets seem to gravitate naturally to the feed and water, but sometimes it is rather difficult to find the bed. I remember one year there was a pullet that persisted in roosting over one of the windows until around the first of the year. Every night, I would put her on the perch and each night it was the same old six and seven.

**Oct. 29** — I am beginning to feel pretty good for a change. The new house is under roof and the asbestos shingle siding has been applied. A priming coat of paint has been given to all exposed woodwork. The carpenters can work now even if the weather does turn off bad.

We have housed around 800 pullets and are in a position to house the remaining quick if the weather should turn for the worst. In other words, we have our organization down to a fare-ye-well, and we have plenty of room for the birds after they are banded and vaccinated. Kid White cleared the two feeding batteries of all small market stock. They are in the sharp freeze room of the cold storage locker plant where the temperature is 12 degrees below zero.

**Oct. 31**—We brought in our usual quota of pullets this morning and then ceased operations on that project for the rest of the day. A 100-dose vial of pigeon strain vaccine will dope from 95 to 110 birds. We must have applied it rather heavy today, because we only vaccinated 192 pullets. This leaves us about 15 birds in the battery to start on in the morning. It is a poor policy to mix up a bottle of vaccine and let it stand from one day to the next.

A chicken man should be able to do just about all kinds of work. I am doing the electrical wiring in my new tenant house. It takes me longer to do it than it would a professional, but I think I am doing a good job.

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¶¶ HIT OF THE SHOW in the General Motors Circus of Science at the New York World's Fair is the frying of eggs over what appears to be a cold stove on which the demonstrator has pressed his hand. The secret of this trick is that the burner has a special generator and coil that operates on such a high frequency (1,600 cycles compared with 60 cycles for the ordinary electric stove) that it will heat up metal objects without affecting non-metallic objects.

# Trends of Turkey Production

By Herbert Beyers

*Condensed from a Talk*

FOR years, almost, in fact, until the last decade, it has been a general belief that turkeys are extremely difficult to raise. In fact, for a time the turkey industry was threatened with extinction. In the early eighties the production of turkeys — all of them raised in small farm flocks—amounted to about one bird for the average American family of five persons, but so heavy was the mortality among the flocks that by 1920 this had been reduced to about one bird for every 15 persons.

Beginning late in the nineteenth century, blackhead invaded one turkey district after another, traveling from east to west with the extension of the turkey industry, until nearly all the turkey growing areas became infested with it. It was this disease that ruined the turkey business in the East and the Midwest and by 1920 threatened to ruin it everywhere.

Starting about 1920, growers began to work out more adequate methods of controlling blackhead and turkey production increased until at present there is approximately one turkey produced for every 6.5 persons.

## Artificial Hatching of Turkeys Recent

Early experiments in incubation of turkey eggs seemed but to confirm the myth that turkeys could not be successfully hatched by artificial means. It was not until within the last decade that incubation of turkey eggs became an established and successful fact and together with artificial brooding, completely revolutionized the industry.

Where for years the bulk of the American turkey crop was the product of small farm flocks, successful incubation and brooding made possible the commercial turkey industry. Instead of being merely a side line, turkey production became a vocation. Flocks of several hundred soon grew until it became rather an established fact that the minimum economic unit for one man to handle was somewhere in the neighborhood of 2,500 birds.

With the increase in turkey production all the other phases of the industry kept in step. Improvements in packing, grading, and selling; the formation of cooperative marketing agencies; the development of better cold storage facilities, all came about gradually and were ready to do their part in the handling of the 1936 crop of 27,725,000 birds, the largest on record.

## 70 Million Dollar Business

According to a report by the Bureau of Agricultural Economics in March, 1939, it was estimated that over 26,000,000 turkeys were produced in the United States last year. The value of the crop was approximately $70,000,000. It is my opinion that this $70,000,000 turned over more than once. For example, the feed men received about half or $35,000,000; the breeders and hatcherymen received $10,000,000; the industry paid over $5,000,000 in freight bills. It is hard to estimate the cost of picking, processing and packing and impossible even to guess at the added cost to the wholesaler and the retailer, but from these estimates, we, at least, begin to realize that the turkey industry is a husky infant.

Presented at the Seventh World's Poultry Congress, Cleveland, Ohio, Aug. 5, 1939

Turkeys are raised in every state of the Union, with Texas the largest single producer. A heavy producing area extends through the middle west from Minnesota to Texas. Recent trends show this area is expanding eastward to include the states of the Ohio River valley, the New England states and south to Virginia. We also have some large producing states on the Pacific Coast, California ranking second in number of birds but first in income from turkeys, due to both heavier turkeys and a higher market value of the product.

Practically driven from New England and the Atlantic seaboard by the ravages of blackhead, turkey production spread west until at the beginning of the present century it centered itself largely in the western states. Comparatively recent developments in disease control and sanitation have made turkey production in the eastern states again possible and there the industry is rapidly rebuilding, this time on purely a commercial scale. The largest proportionate increases are in those states where a few years ago successful turkey production was deemed impossible.

During the past 20 years, we have seen almost a complete revolution of the turkey industry. Two decades ago turkey production was exclusively a farm flock proposition—a minor farm sideline. Producers kept a few turkeys on their farms, hatching the eggs under chicken and turkey hens, allowing the poults to range, the prey of vermin, the victims of storms. A 50 per cent loss was not a calamity, it was a mark of success. The hardy survivors among the poults were left to rustle their own living until fall when, after a brief and often ineffective fattening period, they were sold for market.

## Specialized Turkey Egg Producer

As we learned more about commercial incubation and, thus, were able to hatch turkeys in large numbers, the specialized turkey flocks appeared. For instance, in certain sections like southern California, we have turkey flocks that are maintained largely for their eggs. In fact, the industry in this section centers largely around egg production; meat is of secondary importance. Every effort is made to develop a hen that will lay a maximum number of eggs in the shortest possible time. Coupled with high egg production, breeders are now paying serious attention to a thicker fleshed, quicker maturing type of bird.

Apparently turkey eggs can be shipped almost unlimited distances, and eggs from the Pacific Coast go to practically every state in the Union. The price on commercial eggs varies with both the season and the time of year. Early eggs bring the most money with the price declining as the season advances. Prices generally open with eggs netting the producers 18 to 20 cents, while the price often drops as low as 10 cents an egg late in the spring.

The hatcheryman is one of the important links in the chain that has made the commercial turkey industry possible. While turkey hatching has made great strides in the past decade, there is still a great deal to learn about this phase of the business. Good hatcherymen generally expect to obtain 60 number one poults for every 100 turkey eggs they set. Not all of them do this, however; in fact, the average is less than one turkey hatched for every two eggs set.

The price of poults varies with the price of eggs; it is usually about 2½ times the cost of the eggs. Pre-season poults hatched in January and February, often sell for 50 to 60 cents each, with June or July poults bringing about half this amount. It is not unusual to ship poults twelve to fifteen hundred miles, but as a rule the attempt is made not to have the poults on the road over 36 hours. Very few hatcherymen make any guarantee on poults other than for live delivery, and the responsibility for growing out the birds lies entirely with the purchaser.

The prospective grower must, therefore, be ready for the poults when they arrive. His brooder house must be clean and warm, the feed and water in place, and adequate and competent help must be available to see that every poult gets food and water. Turkeys are not like chickens; they must be taught to eat and the extra care spent in getting a flock started right from the very beginning earns rich dividends for the grower.

While realizing that millions of turkeys are still raised on farms in the old-fashioned way, still it is the new and commercial trends of our industry that are creating problems. Out where I live, one man can handle from 2,500 to 3,500 poults in a single flock and fully employ his time for 6 or 7 months of the year. If he is an average grower, he can expect to market about 80 per cent of the poults he originally receives. If he markets 90 per cent, he is a good operator.

### The Turkey Feeder

We have several types of commercial turkey production. There is the man who buys enough poults for a single flock, grows them out to maturity and sells them all. He is in the turkey business six or seven months of the year; the balance of the season he doesn't own a single bird. He is in no sense a breeder; turkey production to him is a feeding proposition, pure and simple.

Then there is a variation of this type, the larger operator who runs several flocks. Naturally this man must have more capital (or credit), and, if he is to be successful, he must have considerable executive ability. By buying his poults at different dates, he gets a longer utilization of his equipment and perhaps a safer operation in that all of his birds do not go in on the same market. But here again, his is purely a feeding proposition.

Still another variation of the turkey feeder is the man who specializes in off-season production. Pre-season birds, finished turkeys that come on the market in September and October, before the main crop starts to move, have for the past few years brought good prices. To get this price many growers take the added risks of higher poult prices, unseasonable weather and higher brooding costs. This type of producer is rapidly making fresh, finished turkeys available to the consumer every month of the year and is more or less upsetting long established concepts of the turkey market.

### Commercial Breeders

Again, in certain sections, we have what might be called commercial breeders, whose chief interest is in the production of high-class meat birds. They are in the turkey business the year around. Selecting the very tops of their flock each fall for breeders, these producers carry over enough breeding stock to supply their own poults and perhaps sell a few eggs on the side. They either run their own incubators or have their eggs custom

hatched. Like the egg men, they sell their breeders immediately after the laying season and devote all their time to the growing crop of poults. They take pride in the quality of their birds, and from their flocks the most outstanding birds are developed. They are breeders in every sense of the word.

### Trend Toward Large Flocks

To illustrate still another phase of turkey production, there were, in 1929, a few counties in the United States that produced more than 100,000 turkeys each. I recently visited a large ranch, owned by the largest turkey operator I know. He expects to produce 60,000 turkeys for market this year. He doesn't farm them out, or finance them for others or merely control them through furnishing their feed. He actually runs that many turkeys. At certain times of the year he has as many as 40,000 birds on his premises.

No man can build a business of this size without being a real operator; he must use every practical and scientific aid known to the industry to safeguard the health of these birds and promote their growth. I am using this example to illustrate the recent trends toward larger turkey flocks as this single producer will raise as many turkeys in 1939 as were grown in the larger producing counties in America only 10 years ago. This type of mass operation brings new problems.

For consumers to have turkeys at Thanksgiving and Christmas is a tradition as old as the Nation itself. So strongly entrenched is this custom that literally millions of people believe that turkey meat is only good at mid-winter times. If this trend of large scale production continues, particularly on off-season birds, we must persuade the consumers to eat turkey on Washington's Birthday, Easter, Fourth of July, Armistice Day and on Sunday as well as on the traditional winter turkey days.

When the Northwest Turkey Growers Association came into existence in 1930, there were no standards of grading for the industry. We at once adopted government grades and we have used them ever since. We have been a leader in standardizing the grading, packing and sizing of turkeys. Today, there are four government grades — special, prime, choice, and commercial, or they are also known as the AA, A, B, and C. We grade very few specials. Most of our turkeys are A grade, or prime. We label these grade A or prime young birds with out trade mark.

Standardized grading has spread to practically all of the large heavy turkey producing areas in the country. For this we can thank the Extension Service, state departments of agriculture and the U. S. Bureau of Economics for their tireless efforts in developing this grading, as well as for their assistance in all other phases of the industry.

### Bronze Popular in West

Out west we have a very heavy predominance of Bronze turkeys. Probably 95 per cent of all our birds are of this variety, and the tendency is for the breed to become heavier. This is due to the fact that the grower, being paid for the weight, can more profitably produce the heavy turkeys, unless the spread between hens and toms reaches 4 to 5 cents per pound. Throughout the nation, however, we find that the housewife prefers a small bird—usually 8 to 10 pounds. During Thanksgiving and Christmas, there usually are not enough of these small turkeys to go around and they are sold at higher prices than the heavier birds. About 60 per cent of our Northwestern turkeys, by dressed weight, weigh 17 to 25 pounds.

Some turkeys weigh even more than 25 pounds. Practically all turkeys of these weights go into hotel and restaurant channels. Usually, though, they do not all go into consumption immediately, because it would be impossible for the hotels and restaurants to use them all during the winter months. Therefore, they are frozen at temperatures of 10 to 40 degrees below zero, and held below zero, for use during the off-season, or summer months, being held usually from two to six months.

Many people ask for 14 to 16-pound tom turkeys. I am not so familiar with turkey sizes in the East, but out in the West, not many grow in that size. If you want a small turkey, you have to buy a young hen turkey which will weigh from 8 to 14 pounds. If you want a larger turkey, you buy a young tom turkey which should weigh from 17 to 25 pounds. Most of our hen turkeys weigh 10 to 12 pounds, and most of our tom turkeys 18 to 22 pounds. If you want a large young bird, don't worry about the size of it, because no matter how large it is, the quality will be there.

The Federal Government at Beltsville, Maryland, is doing excellent work in an effort to develop a smaller sized turkey. It may be possible soon to produce smaller turkeys, but unless these turkeys will lay a lot of eggs and reproduce readily, so that the cost of both the egg and poult can be reduced, the price to the consumer will have to be several cents a pound higher than for heavy birds or the grower cannot profitably produce them.

With the coming of dressing plants, many growers feel they should market their turkeys at an earlier age. So far no one has invented anything that will make a No. 2 bird a No. 1. They must be finished or they will grade No. 2 or lower. Developing a breed of turkey that will carry weight and still mature at an earlier age offers one of the greatest challenges to our turkey breeders.

### Turkey Being Canned Also

Our organization has pioneered the canning of turkey. We are putting out to the public, in a small experimental way, both a solid pack of canned turkey and turkey soup. This offers the possibility of increased turkey consumption. We have also experimented with smoked turkey, and while there is some smoked turkey being retailed in this country, it can be expected that this specialty will give the consumer a delightful treat and make him conscious that turkey is good to eat more than two or three times in a year.

We are all of us interested in seeing the turkey industry progress. Our production trend is up, and our problems are those of an expanding industry. Eventually we may reach a saturation point. We came rather close to that point in 1936. But it is within our power to move that saturation point almost anywhere we will.

To the millions of housewives who still consider turkey exclusively a holiday meat, to the other millions who do not realize its intrinsic worth, who do not know that turkey is no longer a luxury but a commodity well within the reach of the average family, we turkey people have a message to deliver, for there are still millions who do not know how to prepare turkey for the oven. This offers a challenge to everyone in the industry.

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# Federal and Foreign Exhibits

*This is the last of the special articles describing various phases of the Seventh World's Poultry Congress at Cleveland, Ohio, July 28 to August 7, 1939. A description of state exhibits appeared in September, while the consumer, youth and live bird activities were reviewed in the August issue.*

**United States** — The Federal Government's exhibit, occupying one entire end of the Hall of States and Nations, was the largest ever assembled on one subject by the government. Nine departments cooperated in its preparation, but the material was grouped according to subject matter. These sections dealt with breeding, feeding, housing, disease and pest control, marketing, financing and consumer education. Liberal use was made of large mural photographs.

In the breeding section, models of the new stream-lined turkey were shown along with models of the large breeds. The development and operation of the National Poultry Improvement Plan was depicted by charts and moving pictures.

In the section devoted to housing, small models of poultry houses were used to show the direction of air currents in the ventilation of insulated and uninsulated houses.

A working model of a mechanical turkey, showing how feed is taken in and moves through the various processes of digestion, was the center of interest in the section devoted to nutrition.

Photo murals illustrated the steps in marketing of eggs and poultry products, and price reporting by radio, press and telegraph. A projector told the story of the fair trade practice rules which apply to the baby chick industry.

## Foreign Exhibits

**Britain**—A bas-relief representation of King George VI and Queen Elizabeth occupied a place of honor in the center of the exhibit. The poultry interest in the exhibit centered around live specimens of Light Sussex, the popular dual purpose breed of England. Methods used to encourage the distribution of healthy, vigorous and productive stock were presented.

The auto-sex linkage work that resulted in the production of the Legbar and the Buffbar was reviewed in one portion of the exhibit.

Organization of research and education was demonstrated by an electrically controlled map. Photographs illustrated methods of marketing eggs and other phases of the British poultry industry.

**Canada** — The Canadian exhibit ranked next to that of the United States in size. The choice of colors in the decorative scheme and the lighting effects resulted in a cool restful appearance.

A large map with the heading "Canada—The Natural Bird Habitat" comprised the background at the center of the semi-circle in which the exhibit was arranged. Thirty pairs of game birds in natural colors were placed across this map in the areas in which they are usually found.

Egg production, applied research, scientific research, marketing, production, and pioneer achievement were the subjects covered in the various sections of the exhibit. In the last section were the automatic machines used at Ottawa for tabulating the results in R. O. P. work.

Glass topped show cases, waist high, were used in displaying poultry packs and egg packs. Through the use of mirrors, it appeared as though there was an inexhaustible supply of these products on display.

**Cuba**—A scale model of the National Egg Laying Contest was the center of interest. Charts showed egg production records which have been obtained there. A background painting in oil by one of Cuba's famous artists represented a beautiful rural scene in all its natural colors.

**Germany** — The extent of government regulation of poultry raising was indicated in this exhibit. Production of hatching eggs and breeding stock of only four breeds — Brown Italians, White Leghorns, Rhode Island Reds, White Wyandottes—is permitted in Germany. Egg prices are fixed. All breeding stations are under the supervision of the poultry health service. Destruction of old chickens is encouraged by a system of leg banding which indicates the age of the birds.

In support of the "living room" idea expressed by the political leaders of Germany, one chart contained the statement, "If the United States were as thickly populated as Germany, they would have to provide for more than 1,000 million inhabitants."

A model of a typical German peasant farm house carved out of wood was on display. Poultry raising is not a specialized business in Germany, for most of the flocks are on small farms.

**Hungary** — A diorama of a small farm, typical of those found on the Hungarian plains and on which poultry is raised, was the feature of this exhibit. There were small models of the farm buildings. Because chickens are allowed to range over large areas, production costs under this system are low.

The various poultry breeding areas and the incubating centers which supply small farmers with more than a half million chicks annually were indicated in a large map. There are 163 officially controlled poultry farms in Hungary.

**Italy**—Models of pigeon houses, and photographs of frescoes, mosaics and sculptures of chickens, pigeons and ducks of ancient Rome were represented in the Italian national exhibit.

Maps indicated the location of experiment station, poultry centers and observatories, also the location of homing pigeon clubs and competitions in 1939. Still another map showed the density of the poultry population in the different regions of the country. Photographs illustrating methods of raising poultry on Italian farms, marketing methods, preservation of eggs, and the use of eggs, were displayed.

**Japan** — Stuffed models of native fowls were displayed in picturesque surroundings. Included were specimens of the Japanese Long-Tails, the White cock having a tail 15 feet long, while the Silver Gray cock had a tail 10 feet long. Models of the Japanese Long Crowers were on display also, and the long crow was simulated by a phonograph recording. This exhibit was turned over to the Ohio State Museum after the Congress.

**Netherlands** — The most popular breed of poultry in the Netherlands, according to this exhibit, is the White Leghorn which comprises about three-quarters of the poultry population. The Rhode Island Red is second, followed by the North Holland Blues, a

barred variety known for its meat producing qualities, and the Barnevelder, known for its very dark brown eggs. Ducks, most of which are Khaki Campbells, comprise 4 per cent of the poultry stocks.

The progress in increasing egg production and in cutting down losses from diseases as a result of government supervision was shown in charts. Exports of eggs are supervised as to quality, grades and method of packing by the Netherlands Egg Control Bureau. There has been government restriction of output of eggs and poultry since 1933. All hatcheries and breeding farms are registered.

**Quebec (Canada)** — Location of 43 cooperative hatcheries was indicated on an electrically lighted 18-foot map of Quebec. One section of the exhibit showed the Chantecleer bird and a description of the work accomplished by its originator, Brother Wilfrid. Live Chantecleers were displayed also.

## Chick Embryo Used in Making New Smallpox Vaccine

A new smallpox vaccine that eliminates the scars and other inconvenient features of the ordinary smallpox vaccinating has been developed by Drs. Thomas M. Rivers, R. D. Baird and S. M. Ward of the Hospital of the Rockefeller Institute for Medical Research in New York, according to the August, 1939, issue of Scientific American. This new vaccine is made by growing the virus on a special medium composed of minced chicken embryo and Tyrode's solution. The ordinary smallpox vaccinations have been made with calf lymph vaccine virus.

The Rockefeller scientists advise that vaccination with the new egg embryo vaccine virus be followed within six months to a year by re-vaccination with calf lymph virus. In this way, vaccinated individuals do not become sick and are not subjected to the dangers associated with primary calf lymph virus vaccination, but will obtain a lasting immunity to this disease.

THE Railway Express Agency announced that its new service — Church Refrigerated Container Service—inaugurated recently, is meeting with increasing popular approval. Poultry breeders are using it to ship hatching eggs in the warm months. By using water ice in the containers, germination in the egg is stopped until arrival at the hatchery, with no harm to the germ. Of the shipments thus far, "meats and poultry" represent 2.5% and Hatching Eggs 2.25%. "Serums and vaccines" head the list at 26.7%.

—Poultry Item, Oct. 1939.

BECAUSE a customer for his egg business agreed to buy and pay for a three-year supply of eggs in advance, Paul Corey was able to complete a house he was building for himself near Cold Spring, N. Y., then finish the writing of "Three Miles Square," a novel of farm life published in September, according to the N. Y. Times.

# Winter Management of Layers

By C. L. Manwaring

Mentone, Indiana

*Condensed from a Talk*

WINTER management, as differentiated from summer management, might be considered from about four factors.

Number one is largely applicable to the North Temperate Zone. It is the factor of a generally lower temperature in the winter than in the summer.

Number Two—We have less sunshine in the winter as compared to the summer.

Number Three—We have restricted activity on the part of the birds, depending, of course, upon how you individually care for your stock.

Number Four — We have a little restriction relative to ventilation, necessarily so if the weather is extremely cold.

A generally lower temperature is to be expected in the winter. From my own observation and experience, no harm results.

I believe in the heating of hen houses. I believe that a few large-size brooder stoves or something of that nature to provide heat during those extreme drops in temperature are well worth the time.

If your winter temperature graph has too many sub-normal drops, I would supply a little heat so that the birds' combs would not freeze — in other words, cut off the bottom part of those dips on the graph. There is no poultryman who would not provide unfrozen water.

### Vitamin D Must Be Supplied

It is true that we have less sunshine in the average section in this land during the winter. There are not many poultrymen who are not fully aware of the necessity of providing ultra-violet light in some form. Call it vitamin D if you prefer. Use cod liver oil or feeds that are at least fortified with vitamin D.

If you have sunshine, attempt to utilize it all that you can in conjunction with your protective measures. Sunshine still has something that we have not been able to imitate.

### Proper Ventilation is a Problem

During periods of dropping and lower temperature, it is many times necessary to restrict ventilation. I am of the school that believes in a system of changing air in a hen house. I know if you have had experience with houses that were not ventilated, the odor of ammonia was exceedingly strong, the floors were wet, and yet the birds got along very well. That isn't saying that they will always do that. Therefore, from my own experience, I prefer to have in a hen house some system of exchange of air.

Years ago I adapted an idea for ventilating a hen house in a very simple matter. I brought the air in at the front, put a hole in the ceiling behind, and had a shaft going up to a ventilator on top. That system still works with a few modifications as well as anything I have ever seen.

Some may say, "Why not drop the windows down and let the air exchange itself?" I find that when I depend upon only the exchange of air from the front windows, in some instances, I do not get a rapid enough exchange of air. I find that my houses stay dry, the air is sweeter smelling, and I believe that my birds like it better.

Presented at the Seventh World's Poultry Congress, Cleveland, Ohio, Aug. 2, 1939

During the winter, we have to restrict ventilation by closing the front windows. I can still do that with my system of ventilation. I can pull out some of the foul, ammonia-laden air, making it a better place in which to work and still have my house practically as warm.

### Must Watch Activity of Layers

It is a foregone conclusion that the object of all good management is the securing of maximum egg production with minimum mortality. We farmers are concerned in making dollars and cents. We are not working for the fun of it. With the object in mind of holding up maximum production and minimum mortality of layers, I believe restricted activity, when pullets are brought from the range to the laying quarters, is of great importance.

In the poultry kingdom, cannibalism has grown up to baffle poultrymen and to rob them of their profits in many instances.

There are several types of cannibalism. The nervous disposition that precedes outbursts of cannibalism is definitely inherent. Endeavor to breed away from as much nervousness as possible.

Not all of the chicks that come from your place or mine are cannibalistic due to the nervousness of our birds. A lot of it is induced. History shows that white men, under certain conditions, have become cannibals. The same thing is true with birds.

### Preventing Cannibalism

As a solution I would advise less light in your hen houses, less light in your brooder houses, don't crowd either the brooder houses or hen houses, and provide plenty of feeding space.

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## *Exclusion of Hybrids Raises Query on Function of Tests*

At a meeting of the egg laying contest supervisors, held during the World's Poultry Congress, it was decided to exclude entries of crossbreds from standard U. S. contests. This raises an interesting question as to the function of the contests, which might warrant some constructive thought and discussion.

If, as in England, contests serve to identify stock suitable for production flock replacements, crossbreds have undeniably earned recognition on this score—witness the gradual (and apparently permanent) shift to crosses by many farm flocks and large commercial egg farms, particularly in New England, and witness the large number of breeders and hatcheries now supplying this recently developed market.

If, on the other hand, contests serve the more restricted purpose of identifying only "primary breeders" (those successfully engaged in trapnesting, pedigree breeding, progeny testing and whatnot), then about half of the present contestants would be dropped, and entries restricted to the seven or eight breeds and varieties in which constructive breeding for economic qualities is being carried on.

—Stephen M. Walford, Poultry Tribune, October, 1939.

## *Poultry By-Products—Their Use and Value*

THE increasing popularity of the practice of marketing full-drawn poultry is contributing to more efficient utilization of by-products, for most by-products assume value only when they are available in large quantities.

As an example, the recovery and use of the endocrine glands may be cited. The pituitary, thyroid, parathyroid, adrenals, pancreas, and gonads of chickens have the same properties and medicinal uses as the same glands in cattle and swine, and while some of these glands are too small in poultry for practical recovery, others are being recovered at the present time in some killing and dressing plants.

Another by-product that has increased in importance as the result of the increase in full-drawn poultry is the offal. This material is processed and converted into fertilizer.

The feathers constitute one by-product of which the importance has long been recognized. The drying and saving of feathers from individual birds has been replaced by machine methods in the large killing and dressing plants. Feathers are used in the manufacture of pillows, cushions, mattresses, dusters, and millinery.

As a by-product of the hatchery industry there are large numbers of infertile eggs, and these with inedible eggs from other sources find an important use in the tanning of leather.

Dried egg white is a by-product in egg drying, since there is much greater demand for dried yolk than for dried white in the food industries. The dried whites are used in the clarification of wines, preparation of medicinals, egg shampoo, printers' ink, soap, and varnish and oils for art paintings, for adhesive purposes, in cementing cork to bottle caps, as a fixing agent for pigments, in gilding books in book-bindery, and in photography, paper sizing, and textile dying.

Some of the by-product uses mentioned are minor ones, but there is one by-product not yet mentioned which probably has greater total value than any other by-product. This product is poultry manure. Because of the relatively large proportion of concentrates and small proportion of roughage consumed by poultry in comparison with other farm animals, poultry manure is richer in nitrogen and phosphoric acid than are other manures and is worthy of special care and attention.

—Maryland Poultry Handbook, University of Maryland.

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MAYBE the White Leghorn rooster belonging to F. A. Bennett, Holdrege, Nebraska, needed an alarm clock to help it greet the dawn. When Bennett dressed the bird, he found 59 pieces of metal in its crop, most of them from an old alarm clock.

—Newspaper Article.

ABOUT 132,000 members of 4-H Clubs entered the 4-H poultry projects in 1937, according to J. W. Kinghorne and R. E. Miller, in "How the Government Aids the Poultry Industry," a booklet prepared especially for the Seventh World's Poultry Congress. Of these entrants, 86,281, owning a total of 3,531,906 birds, completed their projects.

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# VIEWS OF THE EDITORS

## Bad Publicity Again

The war has brought the usual madness in prices and with it, we hear again the cry of profiteering. The newspapers, in some cases, make capital of it because consumers are the largest group they represent. Some government agencies use it for political reasons or to show that present policies guard against a shortage.

In the Philadelphia Inquirer (September 13) appeared a story headed: "Huge Surplus of Eggs and Butter Held by U. S. to Meet Emergency." An attache of the state government was quoted as saying: "It really is unfair to increase the price of butter and eggs now." The article handled the facts rather loosely, but contended that the Federal government had stored away in warehouses a gigantic surplus of these two commodities. Nothing was said of the upturn in feed grains in spite of enormous world supplies.

Perhaps this warning was directed primarily to distributors, but, actually, it was bound to have a serious effect on producers just at the time of year when prices normally go up, due to shortage. On investigation, we have found that the government held on that date only about 13,000 cases and that these were being cut down daily by distribution to relief clients. In no case does the government hold eggs for more than two to four weeks. When this article appeared, the government was not buying eggs. In the opinion of one Federal government economist: "Eggs are certainly not out of line in price and the increases up to September 15 were certainly not unfair to consumers."

Producers and other leaders have a job on their hands to educate newspaper editors and others to handle poultry statistics carefully and not to speak of them in the same breath with butter, where the situation is quite different at the present time. There is practically no surplus to speak of (above normal) in eggs.

—Poultry Item, Oct. 1939.

## Candling Considerations

Candling makes losses — first, because the interior character of the egg is not accurately disclosed by candling and the effect is to throw eggs into higher or lower grades than the grade in which they belong; second, candling slows down the movement of eggs to market and repeated candling definitely impairs the quality; third, there is immediate loss in quality due to every handling and change to which the egg is subjected. The goal is to candle only once and to sell the eggs so quickly that the original character or quality is maintained. Exceptions are conceded primarily in holding or storage operations to equalize the supply.

As touching this goal, the proposed revision of language in the U. S. Standards for Quality of Shell Eggs assumes that if farmers present more eggs of strictly newlaid character to the first receiver, the facilities for caring for the quality from that point on are a responsibility of those handling the eggs. One of the most visible indications of farm holding of eggs is the loss of water as indicated by the air-cell.

Omitting any discussion of the problem whether or not other changes occur in the quality and conceding that air shrinkage is no longer an index of interior quality, it does seem as though the government is on the right track (based on theory outlined in the foregoing paragraph) when it proposes to tighten up on the air-cell depth allowed in U. S. "Specials" and U. S. "Extras."

In order to permit midwestern eggs and farm eggs generally to enter the grade of U. S. "Extras" (providing they can be got to market quickly enough), the proposed standards significantly modify the definitions of yolk visibility. The government recognizes that shadows are produced in candling, but they are no longer regarded by scientists as an accurate measure of the opened-out quality of the egg; they have little meaning. Candling has also failed to indicate accurately yolk color. At certain seasons of the year when the yolk begins to cast a shadow, something occurs in nature which has little or no relation to the broken-out appearance of the egg. Nevertheless, the yolks do cast shadows.

Before opposing or defending the proposed revisions, it is desirable that careful study be made of the importance formerly given to yolk shadows and the effect of no longer emphasizing yolk visibility in the standards. If the proposed grades will do what the government thinks they will do to correct a serious handicap to marketing farm eggs, then quite a step forward will have been taken.

It is most important at this time that those who have adequately equipped candling rooms and expert egg men should try making grades according to the proposed U. S. rules and definitions, breaking out as many eggs as necessary to see how nearly the candling appearance can be made to agree with the opened-out appearance of the egg, which is the way the egg is seen by consumers.

—Paul Mandeville, U. S. Egg and Poultry Magazine, Oct. 1939.

## Why Are Some Successful?

I've been interested in figuring out what it is that makes some poultry raisers so successful.

One thing, it seems, is their ability to look over a bunch of chickens and see trouble before it hits, or at least to recognize it in its early stages, when there is still a chance to control it. The average poultryman might see it three days later, when it would be too late to do much about it.

Another thing I have noticed about most successful poultry raisers is that they don't try to hatch their own chicks, mix their own feed, do their own breeding, or dress their own birds.

As long as they feel they are getting their money's worth, they depend on others who specialize in these services and devote their own time and energy to management — the most important factor in the whole deal and the part no one else can do for them.

They don't hesitate to spend a dollar if by doing so they can get back $1.25. But they are careful not to spend money for things they don't need or that will not produce.

They show an amazing amount of common sense in taking the chickens' opinion on feeds, feeding methods, sanitation, and housing.

They don't consider poultry raising a get-rich-quick proposition, but a business which, if properly managed, will give them a good return for the time and the money and the effort they put into it.

—Frank Priebe's Weekly Letter, Sept. 30, 1939.

## *U. S. Commercial Hatcheries Show Large Capacity Increase*

The poultry section of the AAA, in cooperation with the Agricultural Marketing Service, has completed a preliminary survey of the baby chick hatchery industry. It was found in this survey that there were 11,559 baby chick hatcheries with a combined incubator capacity of 406,945,000 eggs in the United States during the period beginning August 1, 1937, and ending July 31, 1938. These are all commercial hatcheries and do not include the many hatcheries which produce baby chicks exclusively for their own use. It is estimated that it was possible for hatcherymen to produce approximately 100,000,000 baby chicks each week when operating at peak capacity. Approximately 300 additional hatcheries have not yet been heard from, but will be included in the final report to be issued later.

A similar survey made in 1934 showed that there was a total of 11,405 hatcheries with a total incubator capacity of 276,287,000 eggs. In 4 years' time, therefore, there has been an increase of only 154 hatcheries or 1.4 per cent, but an increase of more than 130,000,000-egg capacity or 47.3 per cent.

From this preliminary analysis of the 1938 data, there is apparent a pronounced trend in the hatchery industry toward a larger size hatchery. In 1934 it was found that the average size hatchery was about 25,000 eggs, while in 1938 preliminary figures show that the average size has increased to approximately 35,000 eggs.

The states comprising the South Atlantic and the East South Central regions have shown the greatest per cent increase in both number of hatcheries and in egg capacity. The West North Central region, which includes the Corn Belt, showed the greatest decrease in the number of hatcheries. Hatcheries in these states decreased from 2,886 in 1934 to 2,607 in 1938. In spite of this decrease in hatcheries, egg capacity increased from 83,354,000 to 125,850,000 eggs, or 51.0 per cent.

As in 1934, Ohio still ranks first in the number of hatcheries with a total of 756 plants. However, Iowa with 36,382,000-egg capacity now ranks first in total capacity instead of Ohio which was in first place in 1934.

In 1934 there were only 15 hatcheries with over 500,000-egg capacity, while in 1938 there were 42 plants of comparable size.

—U. S. Department of Agriculture Release.

## *Is a Rooster a Chicken?*

The combined wisdom of five Appellate Division Judges was required recently in New York City to decide whether or not a rooster is a chicken, according to the American Produce Review for September 17, 1939.

The case in question involved one Spiros Gregory Filactos who had been convicted at a previous trial for violating the Sanitary Code of New York City upon proof that he kept a rooster at his home, contrary to the regulation which stated that "roosters are prohibited and no roosters shall be kept under any conditions." Filactos had a permit, however, which entitled him to keep 35 chickens.

After studying the dictionary to find out whether or not this permit would include a rooster, the court ruled that both sexes were covered by the permit, reversed the former conviction and allowed Filactos to return to his chickens.

# POULTRY STATISTICS

## Hens on Farms — Rate of Lay

Number of Hens Per Flock, and of Eggs Laid Per Hen and Per Flock, First Day of Month

| Geographic Division | Layers per flock | | | Eggs per 100 layers | | | Eggs per flock | | |
|---|---|---|---|---|---|---|---|---|---|
| | Jan. 1 | Aug. 1 | Sept. 1 | Aug. 1 | Sept. 1 | Aggregate Jan.-Sept. | Aug. 1 | Sept. 1 | Aggregate Jan.-Sept. |
| North Atl. | | | | | | | | | |
| 1928-37 (Av.) | 96.9 | 75.1 | 73.0 | 44.0 | 38.7 | 396 | 33.2 | 28.4 | 335 |
| 1938 | 96.7 | 74.7 | 76.9 | 45.7 | 39.0 | 430 | 34.4 | 29.8 | 367 |
| 1939 | 98.4 | 73.3 | 70.9 | 46.3 | 41.8 | 431 | 34.2 | 29.6 | 360 |
| North Cent. | | | | | | | | | |
| 1928-37 (Av.) | 115.7 | 84.2 | 82.0 | 36.3 | 32.9 | 344 | 30.9 | 27.2 | 345 |
| 1938 | 102.4 | 75.7 | 74.9 | 41.9 | 35.9 | 386 | 32.0 | 27.1 | 348 |
| 1939 | 110.4 | 79.4 | 79.2 | 40.5 | 36.3 | 383 | 32.4 | 28.9 | 367 |
| South Atl. | | | | | | | | | |
| 1928-37 (Av.) | 60.1 | 46.4 | 46.8 | 36.1 | 30.6 | 346 | 16.6 | 14.1 | 179 |
| 1938 | 55.8 | 44.5 | 46.3 | 39.3 | 32.2 | 379 | 17.3 | 14.7 | 187 |
| 1939 | 59.9 | 44.0 | 47.0 | 38.8 | 34.1 | 379 | 16.8 | 15.7 | 191 |
| South Cent. | | | | | | | | | |
| 1928-37 (Av.) | 66.8 | 49.9 | 50.6 | 32.6 | 27.1 | 330 | 16.4 | 13.8 | 187 |
| 1938 | 59.3 | 46.3 | 47.0 | 36.3 | 30.3 | 367 | 16.8 | 14.3 | 193 |
| 1939 | 63.6 | 49.0 | 50.8 | 35.1 | 30.8 | 360 | 17.2 | 15.3 | 201 |
| Western | | | | | | | | | |
| 1928-37 (Av.) | 74.0 | 60.1 | 59.3 | 43.7 | 38.6 | 398 | 26.5 | 23.0 | 261 |
| 1938 | 71.1 | 57.5 | 58.3 | 44.3 | 40.8 | 412 | 26.0 | 23.8 | 264 |
| 1939 | 72.6 | 56.6 | 56.8 | 44.7 | 39.9 | 413 | 25.7 | 22.7 | 261 |
| United States | | | | | | | | | |
| 1928-37 (Av.) | 86.0 | 64.2 | 63.5 | 37.1 | 32.7 | 352 | 23.6 | 20.4 | 259 |
| 1938 | 77.6 | 59.3 | 59.8 | 41.2 | 35.3 | 389 | 24.2 | 20.7 | 265 |
| 1939 | 82.8 | 61.3 | 62.1 | 40.4 | 36.0 | 386 | 24.4 | 21.8 | 274 |

Reports submitted at the close of August indicated the probability of an increase of about 6 per cent in the size of laying flocks this winter over last. This was a larger increase than had been indicated by the reports for July and August, which had pointed to a 3 or 4 per cent gain. Recent sharp price changes are likely to affect materially the number of layers in next year's flocks, through their effect upon the egg-feed ratio.

The heavy seasonal production of eggs continues, due to both a higher rate of laying per hen and to larger flocks than a year ago.

The number of layers reported on hand on September 1 in flocks belonging to crop reporters was 3.8 per cent greater, and the number of pullets not yet of laying age on hand was 8 per cent greater, than a year ago.

The most pronounced increase in present number of layers over last year is 8 per cent, reported in both the West North Central and South Central areas. This increase reflects the gradual recovery there from the losses incident to the feed shortages of the drought years. In the highly commercial North Atlantic and Far Western areas, on the other hand, the number of layers are reported to be below last year and below the 10-year average.

The number of pullets not yet of laying age, which is exclusive of those added to the laying flock before September 1, is the same as a year ago in the South Atlantic States and increases are only 3 per cent and 4 per cent in the South Central and North Atlantic areas. Both of the North Central areas, however, report an 8 per cent gain. The Far Western States, which declined 17 per cent in 1938 below numbers in 1937, show a recovery this year amounting to about 31 per cent. This big increase in pullets in the Far West suggests that the present shortage of 3 per cent in number of layers in that area may be overcome and a substantial gain reported by the close of the year.

The number of eggs laid per hen continues on a high seasonal level, being 2 per cent greater than last September and nearly equal to the record high September rate established in 1937. The increase over the 10-year (1928-37) average rate per hen is marked in all sections. Increases last year are shown in all major geographic areas except the Far West.

The sum of the first of the month layings per hen, January to September, inclusive, is not quite equal this year to the record high aggregate of last year, being about 0.6 per cent less than for corresponding months in 1938, but it exceeds the record for all other years since the beginning of the series in 1925 and is about 10 per cent above the January to September 10-year average.

The indicated total production of eggs on September 1 was about 6 per cent greater than on that date last year and about 7 per cent greater than the 10-year average September 1 total production. While the production was greater than last September 1 in the North Central, South Central and South Atlantic areas, it was less in the North Atlantic and Far Western States.

—Comment from Poultry and Egg Production Reports.

## Poultry Meat Prices

Farm Prices of Chickens per Pound

(Figures given in cents)

| Year | Jan. 15 | Apr. 15 | May 15 | June 15 | July 15 | Aug. 15 | Sept. 15 | Oct. 15 | Nov. 15 |
|---|---|---|---|---|---|---|---|---|---|
| Average 1928-37 | 15.1 | 16.4 | 16.3 | 16.1 | 15.8 | 15.7 | 16.0 | 15.4 | 14.9 |
| 1937 | 13.4 | 15.2 | 14.8 | 14.8 | 15.3 | 16.8 | 17.4 | 17.6 | 16.9 |
| 1938 | 16.7 | 16.2 | 16.1 | 15.7 | 15.0 | 14.2 | 14.3 | 13.6 | 13.6 |
| 1939 | 14.0 | 14.4 | 13.9 | 13.4 | 13.7 | 13.0 | 13.6 | | |

Live poultry markets were stimulated during the early part of September by the approaching Jewish holidays. Prices responded to the heavier buying and advanced during the first 10 days of the month. Part of the advance was possibly due to the raising of the general price level, resulting from the war situation. Relatively heavy receipts at terminal markets, however, were in excess of immediate requirements and when buyers' needs for the above holidays had been satisfied, there was a tendency for supplies to accumulate. The carry-over at this time was reported to be unusually heavy, and under selling pressure, prices receded toward the middle of the month. From then on, the tone of trading was more or less irregular, although probably leaning more toward advances than declines, and toward the close of the month prices were slightly higher than opening September prices. They are not equal, however, to the mid-month level. Neither are they equal to prices of a year ago.

# Egg Prices

### 1939 Egg Prices at New York City

| Kind | Sept.1 | Sept. 8 | Sept. 15 | Sept. 22 | Sept. 29 | Sept. 29, '38 |
|---|---|---|---|---|---|---|
| Mixed Color Firsts | 16¾ | 18 | 19½-20 | 20 | 19 | 25¼ |
| Nearby and Midwestern White Premium Marks | 32 -34½ | 32½-35 | 34½-37 | 28½-31 | 29½-32 | 37½-40 |
| Nearby and Midwestern White Specials | 31½ | 32 | 34 | 26 -28 | 29 | 33 -37 |
| Pacific Coast Specials | 32½-36½ | 35½-39 | 37 -38¾ | 33½-34 | 32 -34 | 41¼-41½ |
| Nearby and Western Brown Exchange Specials | 25 -25½ | 26½ | 29 | 29 | 29 | 36 |

### Farm Prices of Eggs per Dozen

(Figures given in cents)

| Year | Jan. 15 | Mar. 15 | May 15 | June 15 | July 15 | Aug. 15 | Sept. 15 | Oct. 15 | Nov. 15 |
|---|---|---|---|---|---|---|---|---|---|
| Average 1928-37 | 25.9 | 18.0 | 17.5 | 17.4 | 18.7 | 20.6 | 23.9 | 27.0 | 31.1 |
| 1937 | 23.1 | 19.9 | 17.9 | 17.6 | 19.4 | 20.4 | 22.9 | 25.2 | 28.0 |
| 1938 | 21.6 | 16.2 | 17.6 | 18.2 | 19.9 | 21.0 | 24.9 | 27.1 | 29.0 |
| 1939 | 18.6 | 16.0 | 15.2 | 14.9 | 16.5 | 17.5 | 20.6 | | |

Mixed trends in September egg prices are reported by the Agricultural Marketing Service. The early part of the month saw rising prices, which were more or less in line with similar changes in the prices of other commodities. This development was largely due to the outbreak of war in Europe. Toward the middle of the month, however, egg prices receded somewhat, since buying interest and the supply situation could not support the higher prices.

During the latter part of August the rather heavy buying of eggs on the Mercantile Exchanges at New York and Chicago had helped to steady the market. Quantities bought during that month totaled 137,500 cases, all of which were for relief distribution, and thus were immediately removed from commercial supplies. The reaction of the markets following the announcement of the European war, however, was such that this Federal buying was discontinued immediately. No purchases were made between September 1 and September 18, as prices were advancing during most of this period.

About mid-September, this price trend was interrupted by a feeling of uneasiness among dealers. The wholesale price advances had taken retail prices up, causing distributors to become somewhat anxious about the effect of higher costs upon consumption. The advance on retail prices of best white eggs had averaged around 6 cents per dozen at New York City. Another factor which apparently had some bearing on the immediate situation was the Jewish holidays, which slowed up trade in the Eastern wholesale markets. The combination of these conditions, along with reports of current production and supplies, finally led to a recession of wholesale prices.

The general price level dropped enough at Chicago to bring renewed buying by the Federal Surplus Commodities Corporation on September 18. While the quantities bought were small, compared with those of August, purchases were made daily from the 18th to the 25th, inclusive. Prices paid were about 3 cents higher than the August prices. Possibly contributing somewhat to the uneasiness of the past 2 weeks was the unusually warm weather in many sections of the country.

—Comment from Monthly Egg and Poultry Markets Review.

# Receipts of Eggs and Poultry

### Receipts of Eggs (Cases) at 4 Markets*

| Geographic Sections | August 1939 | August 1938 | % change | Jan. to Aug., Inc. 1939 | Jan. to Aug., Inc. 1938 | % change |
|---|---|---|---|---|---|---|
| New England | 21,519 | 19,764 | + 8.88 | 252,586 | 202,751 | + 24.58 |
| Middle Atlantic | 143,090 | 107,883 | + 32.63 | 1,479,713 | 1,234,247 | + 19.89 |
| South Atlantic | 14,120 | 13,998 | + 0.87 | 223,832 | 211,164 | + 6.00 |
| East North Central | 125,651 | 141,746 | − 11.36 | 2,271,612 | 2,165,166 | + 4.92 |
| West North Central | 524,661 | 454,122 | + 15.53 | 6,439,377 | 5,544,244 | + 16.15 |
| South Central | 414 | 1,955 | − 78.82 | 54,104 | 94,576 | − 42.79 |
| Mountain | 19,210 | 30,464 | − 36.94 | 205,490 | 346,655 | − 40.72 |
| Pacific | 45,336 | 47,618 | − 4.79 | 226,122 | 464,222 | − 51.29 |
| Miscellaneous | 362 | 302 | + 19.87 | 3,919 | 4,118 | − 4.83 |
| TOTAL | 894,363 | 817,852 | + 9.36 | 11,156,755 | 10,267,143 | + 8.66 |

### Receipts of Dressed Poultry (pounds) at 4 Markets*

| Geographic Sections | August 1939 | August 1938 | % change | Jan. to Aug., Inc. 1939 | Jan. to Aug., Inc. 1938 | % change |
|---|---|---|---|---|---|---|
| New England | 1,078,238 | 1,320,128 | − 18.32 | 9,292,385 | 8,254,172 | + 12.58 |
| Middle Atlantic | 4,672,733 | 4,476,532 | + 4.38 | 29,022,579 | 25,722,335 | + 12.83 |
| South Atlantic | 1,655,476 | 432,496 | +282.77 | 11,966,600 | 4,728,520 | +153.07 |
| East North Central | 2,895,975 | 2,338,536 | + 23.84 | 24,719,102 | 16,086,680 | + 53.76 |
| West North Central | 12,763,038 | 12,292,553 | + 3.83 | 77,613,888 | 62,082,785 | + 25.02 |
| South Central | 941,865 | 1,624,914 | − 42.04 | 13,426,112 | 15,422,196 | − 12.94 |
| Mountain | 392,856 | 263,013 | + 49.37 | 2,769,473 | 1,767,760 | + 56.67 |
| Pacific | 541,831 | 661,634 | − 18.11 | 5,362,124 | 6,857,168 | − 21.80 |
| Miscellaneous | 0 | 0 | − | 34,117 | 0 | − |
| TOTAL | 24,942,012 | 23,409,806 | + 6.55 | 174,206,380 | 140,921,616 | + 23.62 |

* New York, Chicago, Philadelphia, and Boston.

### Receipts of Eggs and Poultry at Central Western Primary Markets

| Week Ending | Cases of Eggs | | | Pounds of Poultry (000 omitted) | | | Pounds of Young Stock (000 omitted) | | | Pounds of Fowl (000 omitted) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1939 | 1938 | % Chg. | 1939 | 1938 | % Chg. | 1939 | 1938 | % Chg. | 1939 | 1938 | % Chg. |
| Sept. 2 | 56,043 | 49,240 | +13.82 | 4,163 | 4,158 | + 0.13 | 2,561 | 2,644 | − 3.15 | 1,515 | 1,421 | + 6.61 |
| Sept. 9 | 48,362 | 45,852 | + 5.47 | 3,546 | 4,486 | −20.96 | 2,197 | 2,978 | −26.24 | 1,272 | 1,417 | −10.25 |
| Sept. 16 | 45,731 | 47,670 | − 4.07 | 4,375 | 4,782 | − 8.51 | 2,686 | 3,238 | −17.05 | 1,607 | 1,458 | +10.18 |
| Sept. 23 | 39,005 | 42,634 | − 8.51 | 5,730 | 5,591 | + 2.48 | 3,638 | 3,830 | − 5.02 | 1,997 | 1,674 | +19.28 |
| Sept. 30 | 30,613 | 37,588 | −18.56 | 6,670 | 5,787 | +15.26 | 4,001 | 3,960 | + 1.03 | 2,577 | 1,743 | +47.80 |

Receipts of eggs at terminal markets during September have been comparatively heavy. The increase during the first 3 weeks of the month over the corresponding period of 1938 was slightly larger than the 9.3 per cent increase in August this year over last. Receipts at Central Western primary markets continue to show seasonal decreases. For the week ending September 16, they were 4 per cent under the corresponding week of 1938, whereas during the several weeks immediately preceding, increases averaged approximately 10 per cent. With the exception of the week ending September 9, country receiving plants in Pacific Coast States have continued to show weekly increases

### Receipts of Eggs at Pacific Coast Primary Markets

| Week Ending | No. of Plants | Cases of Eggs 1939 | Cases of Eggs 1938 | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| September 2 | 60 | 54,829 | 58,099 | +0.77 | –5.63 |
| September 9 | 60 | 53,646 | 55,138 | –2.31 | –2.71 |
| September 16 | 60 | 54,846 | 55,227 | +2.86 | –0.69 |
| September 23 | 61 | 56,372 | 55,585 | +1.86 | +1.42 |
| September 30 | 61 | 55,969 | 55,202 | –0.57 | +1.39 |

### Receipts of Eggs at Eastern Egg Auctions

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| September 2 | 28 | 22,955 | –1.41 | +30.17 |
| September 9 | 25 | 21,889 | –2.14 | +26.38 |
| September 16 | 26 | 23,842 | +6.07 | +25.16 |
| September 23 | 26 | 25,058 | +5.10 | +31.17 |
| September 30 | 28 | 25,848 | +1.91 | +32.13 |

since the early part of August, but at no time this year have receipts equalled those of 1938. During the past month, however, Pacific Coast receipts have more nearly approached those of corresponding weeks of 1938 than at any other time this year.

The report of September 1 total egg production indicates that in the far Western States, and also in the North Atlantic States, production was less than a year ago, but increases noted in other areas brought a 6 per cent increase for the country as a whole.

Receipts of dressed poultry at the four markets during August were 6.5 per cent greater than in August, 1938. Increases were reported from all sections except the North Eastern, South Central and Pacific Coast States. September receipts have also been heavier than last year.

Receipts of live poultry at Central Western packing plants during the first half of September have been considerably below those of a year earlier. The reduction during the week ended September 9 was 21 per cent, and the following week the decrease was 8.5 per cent. Young stock has been running lower than a year ago most of the time since this class began to be marketed in June. On the other hand, marketings of fowl have been larger than in 1938.

An increase of about 22 per cent in the size of the turkey crop over last year is reported. This indicates a production of nearly 32 million turkeys, which is the largest crop of record, exceeding by 15 per cent the previous record high in 1936. The report indicated that marketings in October or earlier will be 12 per cent, and in November 37.6 per cent. In 1938 the percentages were 10 and 40.8 respectively. Consequently, a smaller proportion of the total crop is indicated for marketing prior to Thanksgiving, which leaves a somewhat larger proportion for the Christmas market and later.

—Comment from Monthly Egg and Poultry Markets Review.

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## Egg-Feed Ratios

### New York Egg-Feed Ratio

| Week Ending | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1939 | 1938 | 1937 | Avg. Egg Price per Doz. (Dollars) 1939 | 1938 | 1937 | Avg. Feed Cost per 100 lbs. (Dollars) 1939 | 1938 | 1937 |
|---|---|---|---|---|---|---|---|---|---|
| September 7 | 6.7 | 4.3 | 6.6 | .285 | .350 | .324 | 1.91 | 1.51 | 2.13 |
| September 14 | 6.4 | 4.5 | 6.7 | .308 | .343 | .330 | 1.98 | 1.55 | 2.19 |
| September 21 | 6.9 | 4.6 | 6.4 | .290 | .333 | .340 | 2.00 | 1.55 | 2.17 |
| September 28 | 7.9 | 4.7 | 6.7 | .248 | .334 | .336 | 1.96 | 1.58 | 2.25 |

### Chicago Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration 1939 | 1938 | 10-Yr. Av. 1929-38 | Price of Fresh Graded Firsts (Dollars) 1939 | 1938 | Cost of Ration per 100 lbs. (Dollars) 1939 | 1938 |
|---|---|---|---|---|---|---|---|
| September 2 | 6.13 | 4.26 | 5.90 | .160 | .237 | .981 | 1.009 |
| September 9 | 7.08 | 4.04 | 5.77 | .170 | .243 | 1.204 | .982 |
| September 16 | 6.59 | 4.16 | 5.65 | .188 | .244 | 1.240 | 1.017 |
| September 23 | 6.66 | 4.13 | 5.61 | .182 | .245 | 1.216 | 1.017 |
| September 30 | 6.39 | 4.10 | 5.47 | .182 | .245 | 1.166 | 1.010 |

## Eggs in Storage

### Storage Holdings of Eggs

| Kind | Sept. 1 5-Year Avg. 1934-38 | Sept. 1 1938 | Aug. 1 1939 | Sept. 1 1939 | % Change Sept. '38-Sept. '39 |
|---|---|---|---|---|---|
| | | (Thousands) | | | |
| Shell Eggs (cases) | 7,330 | 5,942 | 7,024 | 6,596 | +11.0 |
| Frozen Eggs (lbs.) | 123,694 | 125,018 | 144,359 | 135,908 | + 8.7 |
| Frozen Case Equivalent (cases)* | 3,534 | 3,572 | 4,125 | 3,883 | + 8.7 |
| Total (cases) | 10,864 | 9,514 | 11,149 | 10,479 | +10.1 |

* Frozen eggs are converted on the basis of 35 lbs. to the case.

## Poultry in Storage

### Storage Holdings of Frozen Poultry

| Kind | Sept. 1 5-Year Avg. 1934-38 | Sept. 1 1938 | Aug. 1 1939 | Sept. 1 1939 | % Change Sept. '38-Sept. '39 |
|---|---|---|---|---|---|
| | | (Thousand Pounds) | | | |
| Broilers | 9,651 | 9,060 | 7,494 | 8,923 | – 1.5 |
| Fryers | 2,356 | 2,550 | 2,490 | 2,519 | – 1.2 |
| Roasters | 4,266 | 5,065 | 5,963 | 4,886 | – 3.5 |
| Fowls | 9,834 | 8,819 | 12,925 | 12,269 | +39.1 |
| Turkeys | 7,957 | 5,711 | 14,211 | 10,808 | +89.2 |
| Ducks | 6,893 | 11,260 | 7,849 | 10,350 | – 8.0 |
| Miscellaneous | 12,067 | 12,476 | 13,986 | 14,034 | +12.4 |
| Total | 53,024 | 54,941 | 64,918 | 63,789 | +16.1 |

## Egg and Poultry Exports and Imports

**Exports of Eggs and Poultry**

| Commodity | | August 1939 | August 1938 | Jan. to Aug., Inc. 1939 | Jan. to Aug., Inc. 1938 |
|---|---|---|---|---|---|
| Eggs in shell | (doz.) | 209,270 | 163,586 | 1,647,085 | 1,467,604 |
| Eggs and yolks, frozen, dried, or canned | (lbs.) | Not available | Not available | Not available | Not available |
| Live poultry | (lbs.) | 13,238 | 3,114 | 136,424 | 52,767 |
| Dressed poultry | (lbs.) | 331,068 | 134,246 | 1,744,180 | 1,056,834 |

**Imports of Eggs and Poultry**

| Commodity | | August 1939 | August 1938 | Jan. to Aug., Inc. 1939 | Jan. to Aug., Inc. 1938 |
|---|---|---|---|---|---|
| Eggs in shell | (doz.) | 21,447 | 14,639 | 204,884 | 141,880 |
| Whole eggs, dried | (lbs.) | 0 | 6,542 | 35,500 | 132,092 |
| Whole eggs, frozen | (lbs.) | 0 | 0 | 420 | 938 |
| Yolks, dried | (lbs.) | 100,400 | 18,550 | 305,725 | 219,055 |
| Yolks, frozen | (lbs.) | 0 | 21,160 | 25,330 | 385,100 |
| Egg albumen, dried | (lbs.) | 9,000 | 52,200 | 337,283 | 381,974 |
| Egg albumen, frozen | (lbs.) | 0 | 0 | 0 | 30 |
| Live Poultry | (lbs.) | 45,091 | 63,878 | 491,500 | 926,427 |
| Dressed Poultry | (lbs.) | 6,178 | 37,274 | 125,378 | 411,701 |
| Poultry, prepared | (lbs.) | 12,001 | 13,747 | 600,196 | 370,110 |

## Egg Breaking Operations

**Egg Breaking Operations During August, 1939**

| Commodity | | Quantities reported to date for Aug. 1939 | Same firm comparison | | |
|---|---|---|---|---|---|
| | | | Aug. 1939 | Aug. 1938 | % change in 1939 |
| | | Pounds | Pounds | | Per cent |
| Whole eggs (nothing added) | | 2,136,542 | 2,106,152 | 1,395,333 | + 51 |
| Mixed eggs (plain) | | 294,204 | 293,671 | 152,514 | + 93 |
| Mixed eggs (emulsions, also with sugar, salt, etc.) | | 108,670 | 108,670 | 89,010 | + 22 |
| Egg whites (all descriptions) | | 1,184,563 | 1,183,108 | 487,588 | +143 |
| Egg yolks packed | Without salt, sugar, etc. | 600,825 | 597,889 | 265,101 | +126 |
| | With sugar | 242,658 | 242,658 | 204,947 | + 18 |
| | With salt | 236,180 | 236,180 | 0 | – |
| | All yolk emulsions, including glycerine | 0 | 0 | 0 | 0 |
| Total—pounds | | 4,803,642 | 4,768,328 | 2,594,493 | + 84 |
| Total—case egg equivalent | | 137,247 | 136,238 | 74,128 | |
| Number of firms reporting | | 55 | 51 | 51 | |

## Poultry Canning Operations

**Poultry Canning Operations During August, 1939**

| Commodity | Quantities reported to date for Aug. 1939 | Quantities reported for July 1939 | Same firm comparison | | |
|---|---|---|---|---|---|
| | | | Aug. 1939 | Aug. 1938 | % change in 1939 |
| | Pounds | Pounds | Pounds | | Per cent |
| Dressed poultry canned or used in canning | 3,581,019 | 4,189,289 | 3,578,519 | 2,494,057 | + 43 |
| Number of firms reporting | 19 | 17 | 18 | 18 | |

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## *Increasing Newspaper Circulation with an Annual Egg Day*

ON a certain Saturday called Egg Day (it's always in March with us), eggs are taken in exchange for subscriptions, either old or new, and for as many years back or ahead as the customer wishes to pay. We pay the customer a 5 cents per dozen premium for his eggs over the market price on that day.

We held our first Egg Day early in March in 1935 and received 18 full cases of eggs, or 540 dozens, in exchange for the paper.

The second year the idea really began to catch on. Those who had come in the year before were convinced that it was a good deal and their word-of-mouth advertising, plus our own ballyhoo, accounted for 24 cases.

Egg Day, 1937, dawned cold and wet and before the sun had set Washington County, Illinois, had experienced its worst March blizzard in many years. Despite the elements, we took in 40 full cases of eggs or an increase of 480 dozen over the year before.

After the 1937 crowd, it dawned upon us that the Journal's Egg Day had been responsible for bringing about 175 families to town that day and that many more of them had come only because of Egg Day.

So, in 1938, we kept the same 5 cents per dozen premium for renewals but for brand new subscriptions upped the bargain rate to 10 cents per dozen premium.

To help make up this additional loss to us, we impressed the local merchants with the fact that the newspaper was responsible for bringing a lot of potential customers to town on Egg Day.

They fell right in line and the issue before Egg Day was crammed full of extra advertising, all related to our own stunt.

The 1938 Egg Day was nothing short of a nightmare! The first farmer showed up ten minutes after six in the morning and the last one checked in at 9:20 that night. We took in 62 cases of eggs which represented a gain of 660 dozen over the previous year.

Egg Day for 1939 exceeded all past records. The new mark now stands at better than 74 full cases, or 2,220 dozens.

What do we do with the eggs? We have an arrangement with a local commission man who takes them all and pays us a 1-cent premium per dozen. In addition, the commission house does all the egg work. We take care of the subscription work and the Editor, incidentally, holds open house.

In Egg Day we have found not only a pleasant way to clean up and add to a subscription list but also have found the best piece of institutional advertising that we've ever seen.

—From "Egging On Your Circulation," by Joseph B. Campbell, The Quill, May, 1939.

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¶ THE ORDINARY run of nature's oddities doesn't phase scientists at the New Jersey Agricultural Experiment Station, but when Morris Zirulnick, New Brunswick, N. J., egg dealer recently brought in an egg containing four yolks, members of the institution's poultry department sat up and took notice. It was the first quadruple-yolk egg on record in New Jersey. The egg, measuring 5½ inches in circumference the short way and 7⅜ inches around the long way, was produced by a White Leghorn hen on the poultry farm of Harry Horlick, Milltown, N. J.

—News Release, New Jersey College of Agriculture.

# RESULTS OF LAYING TESTS

Standard egg laying tests finished the eleventh month of their 1938-39 laying test year with Kauder's Pedigreed Leghorns at Storrs still far in advance of all other pens. Almost 100 points behind the leaders, but still comfortably settled in second position, are Thomas Mettler's Rhode Island Reds at Hunterdon, N. J. In third position come Ford's Rhode Island Reds at Maine.

Guinn's White Leghorn hen at Georgia still rates number one bird to September 1, but her throne is rather shaky, and Kauder's fast-stepping Leghorn at Storrs seems liable to topple her from the coveted position of high individual for the year.

Dryden's Leghorns at Michigan advanced from fourth to second place in the Leghorn division during August. Sand Springs Home Farm's pen at Texas is third high Leghorn entry.

W. C. Mullins' Rhode Island Reds are in third position in their respective group, some 125 points in the rear of Ford's birds at Maine.

In the New Hampshire section, Edward N. Larrabee's birds at Storrs are strutting along far in the lead of all other contenders. Hubbard Farms' birds at Storrs and A. J. Williams' layers at Florida occupy second and third place respectively.

Dryden's Barred Rocks at Pennsylvania have a 100-point lead in their division over second place David T. Cohen's pen at Central New York. Third place in this breed at the end of the 48th week belongs to Dryden's pen at Central New York.

The fight for leadership in the White Rocks is about the stiffest in any one breed. Holtzapple's Georgia layers have held the highest perch for quite a while, but at least five other pens are threatening to move into the lead. Nearest to the present top pen are Riley Poultry Farm's birds at Oklahoma and Quimby School's layers at Rhode Island.

## Twenty Highest Pens, All Breeds, to September 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 3515 | 3796.80 | Storrs |
| Thomas Mettler | Rhode Island Red | 3620 | 3698.40 | Hunterdon, N. J. |
| Ford's Riverbank Farm | Rhode Island Red | 3460 | 3513.90 | Maine |
| Dryden Poultry Breeding Farm | White Leghorn | 3281 | 3439.00 | Michigan |
| E. N. Larrabee | New Hampshire | 3251 | 3428.15 | Storrs |
| Sand Springs Home Farm | White Leghorn | 3242 | 3427.50 | Texas |
| Kauder's Pedigreed Leghorns | White Leghorn | 3216 | 3411.70 | Georgia |
| Guy A. Leader | White Leghorn | 3286 | 3399.40 | Pennsylvania |
| W. C. Mullins | Rhode Island Red | 3190 | 3387.70 | Texas |
| J. J. Warren | Rhode Island Red | 3195 | 3387.55 | Storrs |
| John A. Clear | White Leghorn | 3149 | 3351.90 | Hunterdon, N. J. |
| Kauder's Pedigreed Leghorns | White Leghorn | 3184 | 3348.20 | Georgia |
| Woodlawn Farm | White Leghorn | 3106 | 3320.60 | Texas |
| Bryan J. Snell | White Leghorn | 3065 | 3316.95 | Pennsylvania |
| Booth Farms and Hatchery | White Leghorn | 3065 | 3299.30 | Oklahoma |
| Nelson's Leghorn Breeding Farm | White Leg. | 3070 | 3272.00 | Texas |
| Donald L. Crooks | Rhode Island Red | 3085 | 3265.10 | Storrs |
| Woodlawn Farm | White Leghorn | 3129 | 3264.45 | Texas |
| J. J. Warren | Rhode Island Red | 3000 | 3219.05 | Rhode Island |
| Tarleton Poultry Farm | White Leghorn | 3037 | 3217.65 | Texas |

## High Pen in Each Standard Test to September 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 3515 | 3796.80 | Storrs |
| Thomas Mettler | Rhode Island Red | 3620 | 3698.40 | Hunterdon, N. J. |
| Ford's Riverbank Farm | Rhode Island Red | 3460 | 3513.90 | Maine |
| Dryden Poultry Breeding Farm | White Leghorn | 3281 | 3439.00 | Michigan |
| Sand Springs Home Farm | White Leghorn | 3242 | 3427.50 | Texas |
| Kauder's Pedigreed Leghorns | White Leghorn | 3216 | 3411.70 | Georgia |
| Guy A. Leader | White Leghorn | 3286 | 3399.40 | Pennsylvania |
| Booth Farms & Hatchery | White Leghorn | 3065 | 3299.30 | Oklahoma |
| J. J. Warren | Rhode Island Red | 3000 | 3219.05 | Rhode Island |
| Content Farms | White Leghorn | 3106 | 3217.20 | Central New York |
| R. O. Wagemaker | Rhode Island Red | 2976 | 3215.75 | Missouri |
| E. B. Parmenter | Rhode Island Red | 3091 | 3208.75 | Florida |
| Kauder's Pedigreed Leghorns | White Leghorn | 2945 | 3107.45 | Western New York |
| George A. Pearce | Rhode Island Red | 3076 | 3106.45 | Passaic, N. J. |
| J. J. Warren | Rhode Island Red | 2925 | 3048.20 | New York State |
| J. A. Hanson | White Leghorn | 2886 | 2961.10 | Arizona |

## High Pen in Each Breed to September 1—(335 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 3515 | 3796.80 | Storrs |
| Thomas Mettler | Rhode Island Red | 3620 | 3698.40 | Hunterdon, N. J. |
| E. N. Larrabee | New Hampshire | 3251 | 3428.15 | Storrs |
| Dryden Poultry Breeding Farm | Barred Rock | 3196 | 3206.55 | Pennsylvania |
| Oscar W. Holtzapple | White Rock | 2658 | 2854.40 | Georgia |
| Lonnie Van Sant | Black Australorp | 2691 | 2843.75 | Arizona |
| Colonial Poultry Farm | White Wyandotte | 2571 | 2699.85 | Texas |
| Ben G. Monroe | Ancona | 2475 | 2530.70 | Texas |
| Harry L. Phillips | Columbian Rock | 2129 | 2237.85 | Missouri |
| T. D. Brown | White Minorca | 2077 | 2235.75 | Texas |
| Highland Poultry Farm | White Giant | 2035 | 2213.10 | Rhode Island |
| S. E. Raymond | Lamona | 1992 | 2122.95 | Storrs |
| Donald Chandler | Silver Laced Wyandotte | 2034 | 2034.90 | Maine |
| Wm. W. Lehman | Buff Leghorn | 1984 | 2003.25 | Pennsylvania |
| Lindstrom Poultry Farm | Buff Minorca | 1938 | 1978.25 | Missouri |
| Hall Bros. Hatchery | Cross | 1744 | 1816.70 | New York State |
| Iowa Master Breeders | Buff Orpington | 1717 | 1786.55 | Missouri |
| Cedarlaid Poultry Farm | Brown Leghorn | 1982 | 1749.15 | Florida |
| Blue Ribbon Farms | Rhode Island White | 1655 | 1681.40 | Texas |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 1393 | 1470.65 | Maine |

## High Pen in Each Standard Test for August

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 297 | 324.35 | Storrs |
| Schwegler's Hatchery | White Leghorn | 310 | 324.30 | Western New York |
| Dryden Poultry Breeding Farm | White Leghorn | 306 | 321.75 | Central New York |
| Thomas Mettler | Rhode Island Red | 305 | 317.05 | Hunterdon, N. J. |
| Sand Springs Home Farms | White Leghorn | 289 | 297.20 | Georgia |
| Dryden Poultry Breeding Farm | White Leghorn | 279 | 296.35 | Michigan |
| W. C. Mullins | Rhode Island Red | 278 | 289.10 | Texas |
| Norman W. Amidon | Rhode Island Red | 265 | 288.80 | Rhode Island |
| Sebold Poultry Farm | White Leghorn | 281 | 288.60 | Passaic, N. J. |
| Thomas Mettler | Rhode Island Red | 276 | 287.35 | Pennsylvania |
| Ford's Riverbank Farm | Rhode Island Red | 274 | 285.10 | Maine |
| Miami Chick Hatchery | White Leghorn | 270 | 279.95 | New York State |
| Roscoe Hill Hatchery | White Leghorn | 265 | 279.25 | Missouri |
| David T. Cohen | Barred Rock | 278 | 274.85 | Arizona |
| Booth Farms & Hatchery | White Leghorn | 253 | 274.60 | Oklahoma |
| Lone Oak Leghorn Farm | White Leghorn | 267 | 274.40 | Florida |

## High Hen in Each Standard Test for August

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Sand Springs Home Farm | White Leghorn | 31 | 34.05 | Texas |
| Lindstrom Poultry Farm | Barred Rock | 31 | 33.95 | Missouri |
| Ford's Riverbank Farm | Rhode Island Red | 31 | 33.70 | Maine |
| Fred Schempf | White Leghorn | 30 | 33.00 | Western New York |
| J. A. Hanson | White Leghorn | 30 | 32.95 | Central New York |
| Louis H. Ritzhaupt | Rhode Island Red | 30 | 32.90 | Oklahoma |
| Ford's Riverbank Farm | Rhode Island Red | 30 | 32.90 | Michigan |
| Foreman Poultry Farm | White Leghorn | 30 | 32.70 | Georgia |
| E. B. Parmenter | Rhode Island Red | 31 | 32.25 | Pennsylvania |
| E. B. Parmenter | Rhode Island Red | 29 | 31.90 | New York State |
| Kauder's Pedigreed Leghorns | White Leghorn | 29 | 31.85 | Storrs |
| Gulfkist Poultry Farm | White Leghorn | 29 | 31.75 | Florida |
| Stern Brothers | White Leghorn | 29 | 31.55 | Passaic, N. J. |
| Trieber Poultry Farm | White Leghorn | 29 | 31.50 | Hunterdon, N. J. |
| Foreman Poultry Farm | White Leghorn | 29 | 30.25 | Rhode Island |
| David T. Cohen | Barred Rocks | 26 | 27.95 | Arizona |

## High Hen in Each Breed to September 1—(335 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| A. E. Guinn | White Leghorn | 316 | 345.50 | Georgia |
| Ford's Riverbank Farm | Rhode Island Red | 314 | 334.20 | Maine |
| Weber Duck Farm | Barred Rock | 301 | 315.80 | Georgia |
| S. C. Houck | New Hampshire | 291 | 313.40 | Pennsylvania |
| E. S. McSweeny | Black Australorp | 287 | 306.00 | Arizona |
| Homestead Farm | White Rock | 278 | 302.55 | Storrs |
| Lindstrom Poultry Farm | White Wyandotte | 282 | 290.50 | Pennsylvania |
| Raymond Murphy | White Giant | 267 | 285.00 | Missouri |
| Eriksen's Ancona Yards | Ancona | 267 | 262.35 | Storrs |
| Colonial Poultry Farm | White Minorca | 240 | 257.00 | Georgia |
| S. E. Raymond | Lamona | 228 | 249.25 | Storrs |
| Donald Chandler | Silver Laced Wyandotte | 227 | 244.00 | Maine |
| Blue Ribbon Farms | Rhode Island White | 216 | 238.10 | Texas |
| Laclede Hatchery | Buff Orpington | 239 | 234.15 | Florida |
| Lindstrom Poultry Farm | Buff Minorca | 238 | 232.60 | Rhode Island |
| Harry L. Phillips | Columbian Rock | 211 | 230.10 | Missouri |
| Hall Bros. Hatchery | Cross | 204 | 222.50 | New York State |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 203 | 219.15 | Maine |
| Wm. W. Lehman | Buff Leghorn | 205 | 208.80 | Pennsylvania |
| Cedarlaid Poultry Farm | Brown Leghorn | 187 | 178.70 | Florida |

## High Hen in Each Standard Test to September 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| A. E. Guinn | White Leghorn | 316 | 345.50 | Georgia |
| Kauder's Pedigreed Leghorns | White Leghorn | 314 | 343.70 | Storrs |
| Ford's Riverbank Farm | Rhode Island Red | 314 | 334.20 | Maine |
| Gulfkist Poultry Farm | White Leghorn | 301 | 328.20 | Florida |
| Ford's Riverbank Farm | Rhode Island Red | 300 | 327.95 | Michigan |
| W. A. Seidel | White Leghorn | 301 | 321.65 | Texas |
| C. T. Darby | White Leghorn | 303 | 318.45 | Passaic, N. J. |
| Henrich's Poultry Farm | White Leghorn | 294 | 318.25 | Missouri |
| John A. Clear | White Leghorn | 302 | 316.45 | Hunterdon, N. J. |
| R. E. & F. H. Kendrick | Rhode Island Red | 291 | 313.60 | Rhode Island |
| S. C. Houck | New Hampshire | 291 | 313.40 | Pennsylvania |
| Schwegler's Hatchery | White Leghorn | 301 | 312.50 | Central New York |
| Stroehlein Bros. | White Leghorn | 285 | 311.50 | Western New York |
| E. S. McSweeny | Black Australorp | 287 | 306.00 | Arizona |
| J. J. Warren | Rhode Island Red | 275 | 300.70 | New York State |
| Booth Farms & Hatchery | White Leghorn | 274 | 297.25 | Oklahoma |

## 20 Highest White Leghorn Pens in Country to September 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Kauder's Pedigreed Leghorns | 3515 | 3796.80 | Storrs |
| Dryden Poultry Breeding Farm | 3281 | 3439.00 | Michigan |
| Sand Springs Home Farm | 3242 | 3427.50 | Texas |
| Kauder's Pedigreed Leghorns | 3216 | 3411.70 | Georgia |
| Guy A. Leader | 3286 | 3399.40 | Pennsylvania |
| John A. Clear | 3149 | 3351.90 | Hunterdon, N. J. |
| Kauder's Pedigreed Leghorns | 3184 | 3348.20 | Georgia |
| Woodlawn Farm | 3106 | 3320.60 | Texas |
| Bryan J. Snell | 3065 | 3316.95 | Pennsylvania |
| Booth Farms & Hatchery | 3065 | 3299.30 | Oklahoma |
| Nelson's Leghorn Breeding Farm | 3070 | 3272.00 | Texas |
| Woodlawn Farm | 3129 | 3264.45 | Texas |
| Tarleton Poultry Farm | 3037 | 3217.65 | Texas |
| Content Farms | 3106 | 3217.20 | Central New York |
| W. H. Kaltreider | 3188 | 3209.15 | Pennsylvania |
| Vandermast Farm | 3084 | 3198.70 | Pennsylvania |
| Guy A. Leader | 3044 | 3188.30 | Storrs |
| Sand Springs Home Farm | 3169 | 3186.00 | Georgia |
| I. Commer | 3098 | 3173.25 | Texas |
| Hollywood Poultry Farm | 3218 | 3170.70 | Georgia |

## 20 Highest Rhode Island Red Pens in Country to September 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Thomas Mettler | 3620 | 3698.40 | Hunterdon, N. J. |
| Ford's Riverbank Farm | 3460 | 3513.90 | Maine |
| W. C. Mullins | 3190 | 3387.70 | Texas |
| J. J. Warren | 3195 | 3387.55 | Storrs |
| Donald L. Crooks | 3085 | 3265.10 | Storrs |
| J. J. Warren | 3000 | 3219.05 | Rhode Island |
| R. O. Wagemaker | 2976 | 3215.75 | Missouri |
| E. B. Parmenter | 3091 | 3208.75 | Florida |
| Donald I. Goodenough | 2994 | 3194.45 | Storrs |
| Ralph W. Anderson | 2962 | 3189.35 | Storrs |
| Vans R. Otey | 3061 | 3187.75 | Florida |
| A. S. Pendleton | 3007 | 3182.00 | Storrs |
| Thomas Mettler | 3018 | 3146.95 | Pennsylvania |
| Wene Chick Farms | 3020 | 3141.35 | Storrs |
| Norman W. Amidon | 2901 | 3132.05 | Rhode Island |
| Norman W. Amidon | 2931 | 3111.00 | Storrs |
| George A. Pearce | 3076 | 3106.45 | Passaic, N. J. |
| R. E. & F. H. Kendrick | 2902 | 3094.40 | Rhode Island |
| George A. Pearce | 3036 | 3088.35 | Hunterdon, N. J. |
| Ford's Riverbank Farm | 3008 | 3088.30 | Michigan |

## 20 Highest New Hampshire Pens in Country to September 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Edward N. Larrabee | 3251 | 3428.15 | Storrs |
| Hubbard Farms | 3082 | 3208.70 | Storrs |
| A. J. Williams | 2994 | 3057.25 | Florida |
| Fuzzydele Farms | 2732 | 2951.75 | Pennsylvania |
| Del Rio Farm | 2739 | 2908.45 | Arizona |
| Steelman Poultry Farms | 2750 | 2900.40 | Storrs |
| W. H. Boulware | 2790 | 2895.75 | Florida |
| W. H. Boulware | 2812 | 2865.50 | Georgia |
| A. J. Williams | 2748 | 2860.95 | Florida |
| Goodwin's Poultry Farm | 2752 | 2860.65 | Storrs |
| Fuzzydele Farms | 2737 | 2850.85 | Western New York |
| Thomas J. Harrold | 2819 | 2846.20 | Georgia |
| H. S. & M. E. Twichell | 2746 | 2825.30 | Western New York |
| Nedlar Farm | 2664 | 2805.30 | Western New York |
| Eben Wood | 2683 | 2759.90 | Pennsylvania |
| Eben Wood | 2629 | 2758.50 | Passaic, N. J. |
| S. C. Houck | 2638 | 2749.05 | Pennsylvania |
| Stroehlein Brothers | 2691 | 2745.95 | Passaic, N. J. |
| Colonial Poultry Farms | 2666 | 2727.60 | Arizona |
| Quimby School | 2769 | 2694.50 | Maine |

## 20 Highest Barred Plymouth Rock Pens in Country to September 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Dryden Poultry Breeding Farm | 3196 | 3206.55 | Pennsylvania |
| David T. Cohen | 2995 | 3105.75 | Central New York |
| Dryden Poultry Breeding Farm | 3000 | 3071.40 | Central New York |
| Dryden Poultry Breeding Farm | 2933 | 3010.95 | Storrs |
| Dryden Poultry Breeding Farm | 2825 | 2972.50 | Missouri |
| Riley Poultry Farm | 2934 | 2893.95 | Michigan |
| R. C. E. Wallace | 2776 | 2869.25 | Central New York |
| Fuzzydele Farms | 2723 | 2843.30 | Storrs |
| Charles Lathrop | 2705 | 2832.30 | Passaic, N. J. |
| Egyptian Hatchery | 2776 | 2830.60 | Missouri |
| R. C. Cobb | 2596 | 2774.80 | Storrs |
| David T. Cohen | 2809 | 2758.25 | Arizona |
| Charles Lathrop | 2738 | 2756.55 | Hunterdon, N. J. |
| Riley Poultry Farm | 2678 | 2750.20 | Georgia |
| Weber Duck Farm | 2500 | 2677.00 | Rhode Island |
| Broad Acres Farm | 2491 | 2659.40 | Storrs |
| R. R. Parks | 2599 | 2648.75 | Pennsylvania |
| R. C. E. Wallace | 2535 | 2646.80 | Oklahoma |
| R. R. Parks | 2624 | 2644.60 | Pennsylvania |
| Eben Wood | 2601 | 2635.40 | Maine |

## 20 Highest White Plymouth Rock Pens in Country to September 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Oscar W. Holtzapple | 2658 | 2854.40 | Georgia |
| Riley Poultry Farm | 2869 | 2829.50 | Oklahoma |
| Quimby School | 2688 | 2827.30 | Rhode Island |
| Homestead Farm | 2777 | 2807.40 | Pennsylvania |
| Red Barn Poultry Farm | 2659 | 2805.10 | Storrs |
| Homestead Farm | 2704 | 2794.30 | Storrs |
| Oscar W. Holtzapple | 2656 | 2719.35 | Pennsylvania |
| Kalerok Farm | 2538 | 2686.85 | Rhode Island |
| Kalerok Farm | 2509 | 2604.95 | Pennsylvania |
| Riley Poultry Farm | 2575 | 2544.75 | Michigan |
| Tender Baby Broiler Hatchery | 2494 | 2529.65 | Oklahoma |
| Albert C. Lawton | 2392 | 2521.35 | Rhode Island |
| Miami Chick Hatchery | 2426 | 2516.25 | New York State |
| Earl C. Dunham | 2391 | 2480.80 | Georgia |
| Faith Farm | 2457 | 2472.60 | New York State |
| E. A. Hirt | 2270 | 2404.70 | Storrs |
| Kalerok Farm | 2265 | 2400.95 | Storrs |
| E. A. Hirt | 2198 | 2356.45 | Rhode Island |
| Lewis Farms | 2300 | 2349.55 | Rhode Island |
| Riley Poultry Farm | 2255 | 2338.25 | Central New York |

## Average Production in Each Test to September 1

| Test | No. Birds | Eggs Per Bird | Points Per Bird | Egg Wt. Per Doz. In Ounces | Per Cent Mortality for Aug. | Per Cent Mortality to Sept. 1 |
|---|---|---|---|---|---|---|
| Texas | 910 | 191.55 | 198.42 | 24.8 | 2.30 | 26.15 |
| Pennsylvania | 1,131 | 188.64 | 195.04 | 24.8 | 2.38 | 16.00 |
| Arizona | 260 | 191.18 | 194.98 | 24.4 | 1.15 | 15.76 |
| Storrs* | 1,300 | 186.58 | 194.06 | 24.9 | 1.76 | 17.15 |
| Western New York | 884 | 188.86 | 193.96 | 24.6 | 1.80 | 13.46 |
| Passaic, New Jersey | 1,001 | 185.21 | 188.70 | 24.4 | 2.57 | 20.67 |
| Hunterdon, New Jersey | 650 | 183.66 | 188.63 | 24.6 | 2.15 | 24.46 |
| Central New York | 910 | 177.88 | 183.17 | 24.6 | 1.53 | 16.37 |
| Georgia | 1,300 | 180.63 | 182.27 | 24.2 | 1.30 | 22.84 |
| Florida | 1,248 | 176.86 | 177.94 | 24.1 | 2.56 | 20.19 |
| Oklahoma | 650 | 171.66 | 176.25 | 24.6 | 4.61 | 23.84 |
| Michigan | 897 | 169.94 | 174.97 | 24.6 | 2.34 | 26.19 |
| Rhode Island | 650 | 163.84 | 172.44 | 25.2 | 2.46 | 23.84 |
| Missouri | 780 | 156.14 | 164.80 | 25.3 | 2.05 | 25.38 |
| New York State* | 1,222 | 159.04 | 159.30 | 24.0 | 2.45 | 21.60 |
| Maine | 1,027 | 148.27 | 150.63 | 24.3 | 2.72 | 29.60 |
| All Tests | 14,820 | 175.98 | 180.45 | 24.6 | 2.25 | 21.43 |

* One week behind other tests in opening because of hurricane.

## High Pen, Each Breed, in Illinois Non-Standard Test to September 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Walter Swanson | White Leghorn | 2109 | 2145.25 |
| Egyptian Hatchery | Barred Rock | 1974 | 2003.50 |
| Illinois Hatchery | Rhode Island Red | 1547 | 1674.50 |
| Mrs. Curtis Manshak | White Rock | 1599 | 1652.45 |
| Corn Belt Hatchery | New Hampshire | 1184 | 1281.40 |
| Macomb Hatchery | Buff Orpington | 1182 | 1215.70 |
| Belldear Hatchery | White Wyandotte | 1152 | 1164.35 |
| H. R. Harnes | Brown Leghorn | 907 | 849.75 |
| Wallace Moody | Buff Rock | 789 | 794.75 |

## 5 High Pens, R.O.P. Progeny Test, Paterson, N. J., to September 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Strochlein Brothers | White Leghorn | 3490 | 3639 |
| E. B. Parmenter | Rhode Island Red | 3304 | 3453 |
| Creighton Brothers | White Leghorn | 3334 | 3410 |
| Francis Townsend | White Leghorn | 3426 | 3322 |
| Eli H. Bodine | White Leghorn | 3190 | 3228 |

## High Pen, Each Breed, Vineland, N. J., Hen Test to September 1

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Sebold Poultry Farm | White Leghorn | 2128 | 2254 | Two-Year |
| Nedlar Farm | New Hampshire | 1809 | 1947 | Two-Year |
| G. E. Coleman | Rhode Island Red | 1794 | 1926 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 1286 | 1389 | Two-Year |
| J. A. Hanson | White Leghorn | 1467 | 1576 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 1320 | 1411 | Four-Year |
| Raymond Gardner | White Rock | 555 | 598 | Four-Year |

## High Pen, Each Breed, Vineland, N. J., Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| J. J. Warren | Rhode Island Red | 5523 | 5985 | Two-Year |
| Sebold Poultry Farm | White Leghorn |  | 5893 | Two-Year |
| Nedlar Farm | New Hampshire | 5441 | 5844 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 4329 | 4579 | Two-Year |
| J. A. Hanson | White Leghorn | 7371 | 7917 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 9984 | 10,529 | Four-Year |
| Raymond Gardner | White Rock | 5507 | 5842 | Four-Year |

## High Pen, Each Breed, in Pennsylvania Hen Test to September 1

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Booth Farms and Hatchery | White Leghorn | 2432 | 2629.30 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 1718 | 1867.20 | Two-Year |
| Fuzzydele Farms | New Hampshire | 1390 | 1521.10 | Two-Year |
| J. J. Warren | Rhode Island Red | 1248 | 1354.45 | Two-Year |
| Fuzzydele Farms | Barred Rock | 1717 | 1851.75 | Mixed Age |
| A. M. Wolgemuth | White Leghorn | 1180 | 1278.80 | Mixed Age |
| Schwegler's Hatchery | New Hampshire | 810 | 865.20 | Mixed Age |

## High Pen, Each Breed, in Pennsylvania Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Booth Farms and Hatchery | White Leghorn | 5977 | 6284.95 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 4888 | 5194.60 | Two-Year |
| J. J. Warren | Rhode Island Red | 4473 | 4798.75 | Two-Year |
| Fuzzydele Farms | New Hampshire | 4464 | 4708.80 | Two-Year |

## *Among Our Contributors*

**Chas. Cane** (p. 595) is owner and manager of a 96-acre farm devoted entirely to poultry near Rosemont, N. J. It has a capacity of 3,500 layers. Some 15,000 pullets are reared and sold annually. One of the original organizers of the first country egg auction in the country at Flemington, N. J., in 1930, he has been its president ever since.

**J. R. Beach** (p. 604), a native of New York State and a graduate of Cornell University, is professor of veterinary science at the University of California.

**Herbert Beyers** (p. 612) grew up in Douglas County, Oregon, an important turkey raising county. Soon after the organization of the Douglas County Turkey Growers Association, first in the United States to use the government grades, he was named secretary and manager. He was one of the organizers of the Northwestern Turkey Growers Association, becoming its first assistant secretary and assistant general manager in 1930. His promotion to general manager, the position he still holds, came in 1932 at the age of 29. The association, which has its headquarters in Salt Lake City, Utah, is the largest turkey marketing cooperative in the United States, handling the output of growers in 15 western states.

**C. L. Manwaring** (p. 620) was a teacher of history and mathematics for eight years before going into the poultry business. He has been breeding White Leghorns for 28 years and is co-manager with Chas. L. Manwaring of the White City Egg Farm at Mentone, Ind.

❦ EGGS, chickens, turkeys and ducks all serve as tickets to the Barter Theatre at Abingdon, Va., according to Life Magazine for July 31, 1939. At this summer theatre, where a company of actors opens 11 plays during the summer in the auditorium of the disbanded Stonewall Jackson College, 40 cents worth of anything good to eat will admit a person to the show. About 50 per cent of the audience bring produce; some folks even bring enough fo a season ticket.

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Editor, Roland C. Hartman, Hanover, Pennsylvania.

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We have no bondholders, mortgages or other security holders whatsoever.

R. B. ALLEMAN, Secretary-Treasurer

SWORN TO and subscribed before me, a notary public, in the County and State aforementioned, o September 13, 1939.

N. R. BURGER, Notary Public

My commission expires April 13, 1943.

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Vol. 1, No. 11 November, 1939

# Year 'Round Brooding

By Mark N. Witmer
Dalmatia, Pennsylvania

*Condensed from a Talk*

WE began out-of-season brooding about October, 1929. We observed carefully the first pullets which were brooded out of season. We checked their performance and their records in the laying pen. We were so well pleased with them that it was just a short time until we did more and more out-of-season brooding, as it was called at that time.

Within a few years we brooded chicks throughout the entire year. By that time it was known as year 'round brooding.

At the present time we have on our own place about 9,000 laying birds. Some of these birds were hatched during any and every month of the year. We have found that under our system of management, these birds give us very good performance, no matter when they were hatched.

### More Uniform Egg Yield

The most important advantage which we have found in connection with year 'round brooding is the fact that year 'round brooding has given us more uniform egg production throughout the year. We no longer have that high peak of production during the spring of the year under our present setup, nor do we have that low ebb of production during the fall of the year. Our production is more or less uniform throughout the year.

In addition, we have a more uniform supply of large eggs and, of course, also a more uniform supply of small eggs, because we have pullets

Presented at the Seventh World's Poultry Congress, Cleveland, Ohio, Aug. 2, 1939

coming into production during the whole season.

When we started to house some of these out-of-season pullets, we kept month-by-month records on their production. We found, without any exceptions, that pullets brooded during any season or any month of the year will lay just as many eggs as pullets brooded during the spring season. Moreover, we found very consistently over the last few years that the chicks brooded during the summer months of June, July and August have given us a somewhat higher production than their full sisters brooded during any of the the other three seasons.

In addition to that, in our record of performance work, we have had more pullets qualify for the R.O.P. certificates from among this summer group than from any of the other groups.

### More Uniform Income

Out-of-season brooding has given us a more uniform income. I think that all of you folks who are on poultry farms are aware of the fact that expenses on a poultry farm are somewhat irregular. Since following the practice of year 'round brooding, we found that we had a much more even and uniform income throughout the year than before we followed that practice. We have a more uniform income from the sale of chicks, broilers, roasters, fryers, market eggs, hatching eggs, and fowl.

Of course, following the practice of year 'round brooding implies that we must also follow the practice of year 'round hatching. As a result, we sell baby chicks from our own plant throughout the entire year.

We have an even income from the sale of broilers because our brooding operations continue throughout the year. The same is true as far as roasters and fryers are concerned, also with fowls, because we have to cull hard throughout the year to make room for these pullets.

### Better Prices Out-of-Season

Invariably, we have received better prices for the products from these out-of-season brooded chicks than we have for the products which result from the regular brooded chicks. That is quite a factor as far as income is concerned.

Still another advantage is the fact that year 'round brooding has made it possible for us to operate our poultry plant at full capacity throughout the entire year. We can keep our laying pens filled.

### Equipment Overhead Low

I think that by far the largest item is the matter of keeping our brooding equipment and brooding equipment costs down to a minimum. Our inventory on our brooding equipment as of June 1 was about $3,000. If we wanted to brood all of our chicks during the regular hatching season and keep our laying pens filled, we would have to invest at least an additional $6,000.

We start all of our chicks in battery brooders (electric) for one week. We then move them to colony houses on a new range for every brood of chicks. When we move those pullets into the laying quarters, those colony houses are cleaned and moved to a new range. Those colony houses are in use during the entire year, allowing only enough time to clean them and move them to a new range.

### Labor Load Even

This also evens our labor load and keeps it uniform. We have as much work at one time of the year as we have at any other time. We employ a definite number of men regularly. We hire no extra help. Giving them work and an income during the entire year has made it possible for us to get good and efficient laborers.

### Has Made Flock Better

Year 'round brooding has helped to decidedly improve our flock. In the first place, as I have mentioned previously, we have to cull hard throughout the entire year, so that we might make room for those pullets which are coming into the laying pens. In that culling, we remove the most undesirable birds. There is no question but what we keep the best of those birds for breeders in our general flock matings.

It has also been a great help to us with our pedigree hatching. We get chicks from our best individuals and we can afford to be a great deal more selective than we could be if we just wing-banded and pedigree-hatched for two or three months of the year. We wing-band and pedigree hatch for from nine to ten months. We feel that we have been making a great deal more improvement in our flock since we have been following that practice of brooding over that period of time.

### Hatchability Improved

Year 'round brooding has improved our hatchability of all eggs set. During the past few years, we have been checking the hatchability of eggs from birds that are 12 months, 18 months, two years, and three years of age. We have invariably found that the hatchability of all eggs set from birds in our general flock matings between 12 and 18 months of age is better than the hatchability of eggs set from hens two and one-half or three years of age, varying occasionally as much as 20 per cent.

No matter what system of management we inaugurate on our poultry farms, and though that system may have ever so many advantages, still there will always be some disadvantages. That is also true with year 'round brooding.

### More Off-Season Broodiness

In the first place, pullets hatched during the fall and early winter are subject to broodiness. Even with White Leghorns, we have had a great many birds go broody during the spring and early summer. It has been a problem as to how to handle those, because if we culled on the basis of broodiness, sometimes we would not have too many birds left in some of the heavier breeds.

We have followed the practice of removing those birds once, and by the use of bands, if they continue, they are sold as culls. We have found that the birds that repeat two or three times for broodiness would continually repeat.

We have some families in our special mating pens that showed no broodiness whatever during the regular hatching season, but those hatched during the fall and winter developed considerable broodiness.

### More Small Eggs

The second disadvantage is the matter of small eggs from birds that come into production during hot weather. We are all aware of the fact that egg size is generally smaller during hot weather. We have found that when these pullets come into production during the hot weather, we get small eggs for a longer period of time, but eventually, when we run into the cooler season of the year, their eggs will size up and they will show just as large eggs as their sisters hatched during any other time of the year. The same is true with bird size.

### Shifting Disturbs Birds

Another disadvantage of year 'round brooding is the matter of shifting birds from one pen to another. We have to do that. During certain seasons of the year, we are going to throw some of those hens out of production. Occasionally, we can shift birds from one pen to another without throwing the hens out of production very much. That is a greater problem with the lighter breeds than it is with the heavier breeds.

### Summer Brooding Practices

I have mentioned that the summer group brooded during June, July and August invariably give us a little better production than birds brooded in any other season of the year. In all fairness, I cannot pass by that without adding a statement or two.

In the first place, through our system of culling by removing the non-producers, when we come into that time of the year when birds produce hatching eggs for June, July and August chicks, we have removed the most undesirable birds and we have the best of those birds left. On any man's farm, the birds that lay during the summer are going to be the best birds on that place.

In the second place, we have always followed the practice of doing our blood testing work during the spring months, handling each bird individually. The birds that remain are the best birds and, of necessity, that would have something to do with the production of these pullets that are brooded during this particular time of the year.

Brooding costs during the summer are considerably lower than brooding costs during any other time of the year. Contrary to the opinion of a great many people and certain sections of the poultry press who advise against brooding chicks during the summer and especially during the hot months, we have in every respect found brooding during the summer most desirable, not only from the cost of producing pullets, but also from the kind of pullets that we have been able to put into our laying pens.

We are careful with these summer groups to move our colony houses and our range shelters near woods or near cornfields where they have plenty of shade. We are careful not to give them heat for too long a period of time.

There is one criticism that is often made concerning this late group—that they do not develop and come into production as soon as their sisters which are brooded during other times of the year. Under our system of management, we haven't found this to be true. Near the first of November, we give these late summer brooded chicks lights to make a 14-hour day.

In checking our special mating families as to the time from the date of hatching to the first egg, we found that in Barred Rocks the summer group came into production under our system of management 18.8 days sooner than did the group brooded during February and March.

Climatic conditions of my section of central Pennsylvania are rather severe. We occasionally run into seasons with a great deal of snow and cold weather. We brood chicks and keep them in the colony houses during that time. On a great many occasions, we have let chicks out when they were from three to six weeks of age. If there was excessive snow on the ground, we removed it so that they could go out and come in at will.

There are a few things which I consider very important as far as this fall and winter group is concerned. These management factors are also important as far as other groups are concerned, but I am convinced that they are more important as concerns the fall and winter group.

### Don't Supply Heat Too Long

The first one is that we do not supply heat to this fall and winter group for more than seven or eight weeks under any conditions. We run into zero weather and the temperature has been down as low as 20 degrees below zero in our particular locality. After they reach seven or eight weeks of age, we take the heat away from them.

### Teaching Chicks to Roost

One thing that goes along with the heat problem is the matter of making the birds roost. We have developed a system of getting them to roost, and it has worked very nicely. We have 12 by 12 colony houses. We construct four frames, 4 by 4 feet around the outside, with a wire netting over the top, putting the roosts on top of the wire. Then we set those roosts against the back of the house, putting them at a slant. In the front of the building, they are on the floor and they are raised 15 inches at the back.

We use a bag to brush the six-week-old chicks up on to the roosts. We have taught a group to roost in two or three lessons, but with some it takes a week. We have yet to find a group of heavies that cannot be taught to roost in this particular manner.

My reason for emphasizing this matter of roosting, as far as fall and winter brooding is concerned, is that if we take the heat away from these chicks and allow them to roost on the floor, there is going to be crowding and sweating. They will not develop as uniformly as if they had been taught to roost.

Another important management factor is the matter of not crowding. It is also important not to crowd other groups, but it is more so with the fall and winter group. If they are crowded, it will mean that they will not come along as nicely. We put 250 chicks in a house. At between eight and ten weeks, we remove the cockerels, leaving 125 or less pullets in those 12 by 12 colony houses. We have found that to be very satisfactory.

Year 'round brooding has come into greater and greater use during the last number of years because folks have found it to be a practice which evens up their poultry business—giving them a more even income, a more even labor load, more even size of laying flocks, and a smaller investment in brooder equipment.

---

¶ WHEN Gene Sharrer, Califon, N. J., poultryman wanted a new multiple-story poultry house recently, he bought an 80 by 34-foot dairy barn that had never been used from a neighbor and moved it to his farm. Transporting the barn intact over the mile of hilly New Jersey country separating the farms was quite an engineering feat and necessitated cutting a patch of woods, according to the New Jersey Farm and Garden.

# Outlaw Eggs

By O. K. Moore

*Reprinted from Everybodys Poultry Magazine*

"THE existence of trade barriers between the States," points out Henry A. Wallace, "provided a powerful incentive for calling the Constitutional Convention of 1787. The resulting Constitution, it was thought, insured free trade between the States.

"Today," warns Secretary Wallace, "We cannot say that we have free trade between the States."

Because of public health measures, certain tax laws of motortruck regulation, of grading, labeling, and packaging laws and of state-financed advertising of farm products, Secretary Wallace issues his cautionary statement. As with practically every agricultural commodity, poultry — and especially eggs—are being subjected to laws, "outlaw" laws in fact, that prohibit their freest movement from state to state.

### Laws Hit Egg Traffic

Certain laws that retard egg and poultry traffic were drawn and have been administered to serve a worthy purpose. Yet, by-product elements inherent to these rulings serve to "jam" commodity traffic. Other laws have been created specifically to prohibit free flow of trade between states. Some state legislatures virtually are fortifying their states against "outside invasion." They treat their neighboring states as if they were foreign nations, not as friendly sister states each comprising one unit of a great country.

States are prohibited constitutionally from creating tariffs against one another. Paradoxically however, tariff walls have been erected around certain states by the passage of laws that have the same effect as though an actual tariff had been levied. While the United States may conserve capital for home use by levying tariff measures, states are not authorized to enact them. Nevertheless, many "hybrid-type-tariffs" borne of state legislation serve in a similar capacity and, consequently, fail to uphold the true spirit of Americanism.

### Some State Egg Laws

Egg labeling and grading legislation exists in 40 states with no two pieces of legislation alike. Four states—Florida, Georgia, North Carolina and South Carolina — have formulated their laws so that discrimination against out of state eggs forms their basis. These laws have been appropriately termed "foreign egg" laws. Furthermore, Montana, Arizona and Colorado make some form of discrimination against eggs produced out of state although their laws are not based upon this factor alone.

One State Department of Agriculture has made the statement that their egg law which discriminates against "foreign eggs" is for two purposes: First, to indicate to the purchaser the quality of the eggs on sale and second, to promote the use of state-produced eggs. Eggs sold in Florida, Georgia and Montana produced out-of-state must be labeled "shipped" and the name of the state of origin is required, while in North Carolina, South Carolina and again in Florida, the name of the home state must be applied if the eggs are produced within the state.

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(Everybodys Poultry Magazine, October, 1939)

Look at the Florida situation. Many Georgia-produced eggs can reach the southern Florida resort markets quicker and in better condition than can West Florida-produced eggs. Yet, the Georgia product is shown discrimination. Florida, too, produces barely half the eggs consumed by Floridans. Other state legislation, likewise, can be condemned upon this basis. Florida leaders, doubtless seeing their mistake, endeavored to rectify the barrier which has been imposed upon out-of-state eggs. Hence, in the House of Representatives a bill was passed this last spring eliminating the word "shipped," but when it reached the Senate, concurrence between the House and Senate failed, so the regulation is still effective.

### Quality Secondary to Origin

Interstate trade wars, having advanced over a wide front with rapid movement, prevent out-of-state eggs, regardless of actual quality, from making the top grade in seven states! Imagine what this means. Although they actually grade sufficiently high, because they are out-of-state produced, eggs in seven states must be sold at a lower grade.

Rhode Island has set an un-American example in this respect. Her top grade is termed "Rhode Island Specials" and only Rhode Island-produced eggs may be sold in this grade. The next grade is known as "fresh eggs" which is unlimited as to state of origin.

Colorado has an embargo law on a specified grade of eggs which serves as a hindrance to trade. The Colorado egg law prohibits eggs grading U. S. Trades from entering the state.

Before house to house salesmen can operate in Baltimore, Cleveland, Denver, Mobile, Pittsburgh and St. Louis, they must pay a $200 tax, a tax greater in many instances than that imposed upon established merchants! The annual fee required of merchant-truckers in Louisville, Ky., is $250 and in Fort Wayne, Ind., $300. Many cities require these salesmen to post bonds as high as $1000. Poultrymen with retail routes cannot operate with barriers such as these.

### "Tit-for-Tat" Legislation

No, laws obstructing trade in eggs and poultry have not become nationwide as yet. But unless action is taken immediately to rub off statutes now on the books, reprisal laws will tie up free trading in poultry and eggs generally. Louisiana, not being allowed to ship some of her products into certain states on a free trade basis, has passed a retaliatory regulation which restricts the sale in Louisiana of any commodity produced by a state imposing like embargoes upon Louisiana produce.

Again, the Commissioner of Agriculture of Georgia may, when he sees fit, curtail importations of agricultural products from other states if the state production is sufficient to provide for local needs.

No state in the Union has fewer than two laws obstructive to interstate commerce, so reprisals are abundant.

Trade barriers highly detrimental to poultry and eggs, both characterized by rapid perishability, are those directed towards trucking. So complex have these barriers become that our speedy trucks have been slowed virtually to a horse and wagon pace when they attempt to pass from state to state. Excessive taxes levied against "outsider" trucks have forced poultrymen back to their farms.

What's to be done to stop "tit-for-tat" legislation? The logical solution is for state law-making bodies to change their statutes and confer with their neighbors, enabling the erection of uniform regulations. The governors of Indiana, Maryland, Missouri, Nebraska and a few others are seeking vigorously peace terms for state trade barrier wars. Additional leaders will fall in line, certainly, and apply horse sense to the problem; otherwise the Federal Government will be forced to intervene, it seems.

# Eggs Handled by the Auctions

Marketing of eggs through country auctions is relatively new, the first country egg auction being established at Flemington, N. J., in 1930. So rapidly has this form of marketing developed that the volume of eggs handled by the various auctions in the northeastern states exceeded a million cases in both 1937 and 1938.

The nine-year record of egg auction sales is given in the table below. The figures for 1930 to 1937 were compiled by the Farm Credit Administration, while those for 1938 were compiled by the Economic Service, University of Connecticut.

EGGS HANDLED BY AUCTION ASSOCIATIONS—1930-38

Number of Cases

| Association | 1930 | 1931 | 1932 | 1933 | 1934 | 1935 | 1936 | 1937 | 1938 |
|---|---|---|---|---|---|---|---|---|---|
| Flemington, N. J. | 6,399 | 32,699 | 44,181 | 58,555 | 68,521 | 80,171 | 101,388 | 123,139 | 125,312 |
| Vineland, N. J. | | 13,764 | 32,673 | 49,528 | 63,710 | 74,810 | 90,946 | 111,963 | 121,867 |
| Doylestown, Pa. | | 8,688 | 26,220 | 34,313 | 39,038 | 46,685 | 54,835 | 71,271 | 73,459 |
| Mt. Holly, N. J. | | | 753 | 2,930 | 4,333 | 7,527 | 9,918 | 13,556 | 17,758 |
| Center Point, Pa. | | | 7,192 | 21,638 | 24,702 | 30,297 | 36,985 | 46,090 | 47,312 |
| Wooster, Ohio | | | 8,772 | 21,804 | 26,097 | 26,377 | 35,775 | 45,780 | 50,151 |
| Bethlehem, Pa. | | | 4,438 | 15,678 | 19,588 | 20,092 | 25,366 | 36,179 | 38,072 |
| Brockton, Mass. | | | 6,591 | 23,169 | 36,688 | 42,073 | 62,277 | 88,545 | 83,510 |
| Coatesville, Pa. | | | 2,086 | 10,742 | 13,833 | 15,591 | 20,656 | 32,585 | 41,316 |
| Poughkeepsie, N. Y. | | | 2,994 | 19,671 | 19,993 | 22,205 | 30,700 | 31,608 | 22,825 |
| Central Islip, N. Y. | | | 1,198 | 11,285 | 14,343 | 14,760 | 15,816 | 17,559 | 15,384 |
| Paterson, N. J. | | | | 8,562 | 13,619 | 16,487 | 20,548 | 25,738 | 24,865 |
| Hamden, Conn. | | | | 2,600 | 9,826 | 16,659 | 24,290 | 33,360 | 29,913 |
| Hartford, Conn. | | | | 6,003 | 23,555 | 28,799 | 43,600 | 63,423 | 45,598 |
| Springfield, Mass. a | | | | 3,577 | 12,166 | 16,767 | 23,569 | 34,378 | 30,801 |
| Butler, Pa. | | | | 6,452 | 19,133 | 31,202 | 41,532 | 52,894 | 52,990 |
| Albany, N. Y. a | | | | 5,867 | 13,483 | 9,840 | 10,194 | 9,826 | 10,162 |
| Buffalo, N. Y. a | | | | 5,039 | 11,439 | 13,711 | 16,539 | 16,866 | 16,076 |
| Hightstown, N. J. | | | | 731 | 7,939 | 15,243 | 21,687 | 37,620 | 44,132 |
| Derry, N. H. | | | | | 11,756 | 28,379 | 50,716 | 85,269 | 65,573 |
| Bucyrus, Ohio | | | | | 4,946 | 7,746 | 8,654 | 8,694 | b |
| Brooklyn, N. Y. a | | | | | 5,098 | 28,148 | 34,392 | 28,776 | 25,110 |
| Willimantic, Conn. | | | | | 590 | 3,262 | 6,418 | 8.476 | 10,177 |
| Providence, R. I. | | | | | | | 4,944 | 13,461 | 10,376 |
| Versailles, Ohio | | | | | | | | | 11,579 |
| TOTAL | 6,399 | 55,151 | 137,098 | 308,144 | 464,396 | 596,831 | 791,745 | 1,037,056 | 1,014,318 |

a Began as auction association but discontinued auction method of selling eggs.
b Data not available.
North East Ohio association sells eggs on pool basis, poultry by auction method. Egg sales not included above.

# Breeding for Livability

By Arthur J. Hannah
Grand Rapids, Michigan

*Condensed from a Talk*[*]

MOST of the better "poultry breeders" have a definite breeding program that is kept constantly in mind. Their programs are based on: egg production, egg size and egg quality; hatchability, livability, and longevity; reasonable body type, bird size, freeness from standard defects; or various combinations of these factors.

At least 12 years ago we became convinced that much the most important of these qualities were livability and longevity. We have stressed these qualities in all of our sales literature. We know that certain families and strains inherit a definite resistance to most diseases, and any sensible program must be based on the premise that chickens to be kept for a profit, under ordinary management, and under ordinary conditions, must be able to live well and lay well. Hens under good flock conditions that can lay well over a period of years have in their make-up something that individuals lack that fall by the wayside.

### Life-time Yield Important

In my opinion, at least, life-time performance — production in second and later years—is of more importance in a poultry breeding program than the first year's production. A breeding program in which all of the females are trapped as long as they are retained or remain on the breeder's premises means considerable added expense—but in the long run through proper use of these individuals, it will more than pay.

There are not a great many 1,000-egg hens in the country. We have produced more than 60 such individuals, and their records demonstrate livability and longevity. These females made these records under normal good conditions, under normal good management, and on good rations. They continued to live and lay while others under identical conditions passed on. These hens came through various epidemics, showing an inherited resistance built up through a survival-of-the-fittest breeding program.

Breeding for resistance, retaining and using only those birds that live and lay well over a period of years, offers the greatest hope that appears on the horizon today to combat "laying house" or adult mortality. There is no reason for great alarm or excitement. Losses have been averaging in laying contests about 20 per cent; mortality on farms has been running as high as 30 per cent. The limiting factor in poultry profits for many years has been adult mortality.

We have known considerable about nutrition, feeding, housing, and management, for some time. From my observation, most losses have gone undiagnosed or are attributed to a few causes such as leukemia, big liver, visceral gout, etc. Now it is quite possible that nutrition may have something to do with these losses. Management and housing probably

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account for some losses, but it is our belief that breeding is responsible for a considerable percentage of this mortality. Breeding from long-lived individuals, and from long-lived families of reasonably good production averages, in my opinion, is going to be the solution of the mortality problem.

### Family Records Count

After all, in any intelligent breeding program, families are more important than individuals. The plant breeder observes the average of all the progeny. Uniformity of quality is generally the determining factor. In the dairy industry, dairymen have long since learned that high individual records mean nothing, but that high average family production means a very great deal. The dairy herd associations have worked out indexes for measuring family quality. A bull is not highly regarded until a sufficient number of his daughters have come into production to indicate his breeding quality through their performance. A herd sire with a few outstanding daughters and some ordinary daughters is just an ordinary sire, but the herd sire whose daughters are uniformally good is regarded highly. The principles that apply to breeding for milk production, quality, and quantity, are essentially the same as those principles that apply to poultry breeding.

Several years ago in the Leghorn business, we had progressed as far as was possible using the breeding methods then in practice. Improvement beyond that point could come only through intelligent work on a family basis. Poultrymen are not family-minded. Hatcherymen and farmers still emphasize 300-eggers as a mark of high quality. Register of Merit or R.O.M. is the first recognition that has been given to poultry breeding on a family basis.

Production breeders and R.O.P. breeders very frequently have been disappointed with the progeny of individual males carrying fancy pedigrees. A pedigree tells very little. A long line of records in the ancestry may mean almost nothing. I would rather have a male from a 240-egg hen with a large number of daughters that average to lay more than their mother, than a male from a 300-egg hen with nondescript daughters.

We have been watching families for over 15 years. During the early part of this period, however, we followed the practice of emphasizing high records. Today, we consider all females with records above 240 eggs together; 240 eggs, or 20 eggs a month for 12 months, indicates very satisfactory production. Variations above that depend on many factors other than inheritance, such as date of hatching, the quality of the growing range, weather, the moving of individuals from one pen to another, etc.

The time has come when the leaders of this industry and particularly the men in the colleges, must place much more emphasis on family breeding, progeny testing, or Register of Merit work, for after all they are all the same thing.

The Government of the United States has established a fine research plant and laboratory at East Lansing, Michigan, to study some phases of the adult mortality problem. This adequate plant is built in two identical sections—one to study mortality from the standpoint of the pathologist, and the other to study it from the standpoint of the geneticist, thus recognizing that breeding or inheritance are factors that must be considered.

Fifteen years ago we personally embarked on a breeding program

based on the assumption that there is an inherited resistance to the various ailments causing tremendous death losses to practical poultrymen. As the years pass, we are more certain that we are on the right track.

The pathologists are helpful in their evermore efficient inquiries into the nature, causes, and remedies for each specific poultry disease.

The real poultry breeders must, through their careful patient application of genetic principles, develop families and strains that have enough inherent stamina and inherited disease resistance to survive and lay profitably under ordinary farm conditions, exposed to the common pathogenic organisms that cause the more widespread poultry ailments and diseases that are to be found on almost every American farm — common colds, coccidiosis, range paralysis, leukemia, etc.

The poultry disease problem will be mastered and the poultry breeders of today and tomorrow will play a big part in its mastery.

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## *Don't Be a Bustler*

There are some people who go about the world positively exuding their energy. They dash here, crash there, and generally are dynamic in the way they tackle a job.

That is just the sort of man who is not wanted on the poultry farm and an employer will not only be unimpressed by his show of industry, but will probably give him a week's wage "in lieu."

Poultry are nervous creatures and their understanding is so small that they literally respond to every nervous situation created.

The attendant who crashes back the door of a house and propels himself in with feed bucket or cleaning utensils has the whole place in panic in a fraction of a second and birds take an appreciable time to recover.

The thoughtful attendant always makes his approaches to the birds quietly. Before he enters a house he gives a few gentle taps on the door.

Those taps prepare the birds for his entry. They are forewarned that something is going to happen and are not unduly disturbed.

Indeed, on most places the birds wait for the knocks on the door and in their own way give the attendant a welcome.

Work inside the house should be efficiently done; regularity of movement which conveys no sense of hurrying, should be practised.

Noises which have to be made should be "even." Scraping the droppings boards should not be a series of staccato sounds of varying inflexions and periods, but the same movement and noise throughout the whole operation.

Feed and water troughs should be filled unhurriedly and buckets both handled and placed quietly.

When work in the house is completed, the door should be closed without fuss.

The attendant can make or mar a laying house by his conduct and the new hand should never overlook the responsibility he carries in this respect.

—Eggs, London, England, Sept. 27, 1939.

# My Experiences in Breeding for High Egg-Production

By E. B. Parmenter
Franklin, Massachusetts

*Condensed from a Talk*

IN 1898 my father bought his first pen of Rhode Island Reds, 10 hens and one male, from a poultry keeper in Rhode Island.

They had very good winter production. Compared with the Barred Rocks which we were keeping at that time, they were slightly superior in egg production. The main point in favor of those over the Barred Rocks was the fact that we did not go out in the morning and pick up one or two dead ones off the roost, as was customary in the Barred Rock breed at that time.

### Switched from Cows to Poultry

In 1913, in anticipation of going into the poultry business seriously, my father sold the farm, which was a general dairy farm with probably 200 or 300 birds, buying one more appropriate to be enlarged into a modern poultry farm.

In 1915, we were mentally ready to start in the chicken business. Physically, we had nothing on the new farm, so it was a case of building anew. We completed our first laying house in 1915 and we started trapping that year. From that day since, we have never skipped one single day of trapping.

### Originally Raised Rose Combs

Originally, we had Rose Combs. The Rose Comb of 1915 was the most popular at that time in our section, but I did notice that the Single Combs were very productive, so I trapped some of them in addition to the Rose Combs for the first year. I found that they were equally productive, if not surpassing the productivity of the Rose Combs.

The leading factor which influenced the use and development of the Single Combs was the demand for day-old chicks which came about two or three years later. The demand was principally for Single Combs. We had built up a flock of Rose Combs, but we picked out the 10 best Single Combs and that was the foundation of our present stock.

### Had a Non-Broody Family by 1919

By 1919, I had produced a family that was non-broody. In those times a non-broody Rhode Island Red was an exception and this family appeared to be "tops."

We found, however, that not much breeding progress could be made with this family. They would lay a good many months during the year, but never would lay more than two eggs in succession. I decided to bring in a cross with these individuals to make them fast layers. This was a very important point and decision. It has led me in all of my breeding work to emphasize fast laying as one of the major points in breeding for egg production.

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By crossing these non-broody, slow layers with broody birds we had a bird which was mixed in inheritance. The progress in developing a family or strain from them was necessarily slow.

### Sent First Pen to Storrs in 1923

In 1923, we put our first pen in the egg laying contest at Storrs, Conn. They averaged neither higher nor lower than the average Red at that time. It was a good many years before there was any noticeable progress in increased production. All Reds, however, were good in winter production, and that led to encouragement in future breeding work.

In 1928, we started progeny testing work. We had secured 225-egg hens and then gradually secured birds that would lay 250 eggs in such quantity that we had to choose between the sons of one group or another. Therefore, it seemed logical to me not to waste the mating of these males with females that had never been mated before and with an unknown production factor.

### Method of Progeny Testing

We reserved a few single matings of one male and 12 females. In those pens we put daughters from superior families that showed good production up to the time of the selection.

The males were left there for only about three weeks. The first week the eggs were not saved; but the second and third weeks the eggs were saved and trapnested. They were marked, put in pedigree trays, and we hatched pedigreed chicks from them.

As these chickens developed, their growth, production in the early fall, their maturity and the size of their eggs, were the deciding factors of these matings. We could pick out from a group of 15 males perhaps only one that we would care to use in our more valuable matings.

Any single pen of pullets was mated with two or three males during the season. Later, progeny testing of males with these pullet matings was found undesirable as we increased our production, but more so because we had so many high-producing hens that we had to use all of our 50 hens for single matings of R.O.P. birds with good quality.

Today, we are still using 50 single matings with 12 females and one male. From this group we secure a large percentage of pullets each year to trap. The males, of course, qualify as sires in breeding pens for the production of day-old chicks for commercial egg production.

### Early Maturity Stressed

From 1929 on, a more comprehensive breeding program has been followed. It was found necessary to stress early maturity, as the Reds of 20 or 25 years ago were rather slow in maturing. Birds that would take 240 days, or eight months, were common back in 1900 to 1915.

I think you will find in all breeding work that you should work for one character at a time in the first years of breeding work and emphasize that character until you have it. Then you can add other characters as they come along in the order of their importance.

The second character of importance was intensity, and that is the character that I have emphasized most. Since combining the characters of the non-broody bird and the intensely laying bird, we have made real progress. That progress can be demonstrated by the best record to date of intensity. We had one bird in an egg laying contest in 1935 that laid from her first day of arrival one egg a day for 231 days—and it wasn't a small egg, either. It was over standard, and she made more points than eggs.

### Persistency Also Emphasized

Persistency was the next character we emphasized. This seemed to fall in more readily. After establishing a strain that would lay nearly 200 eggs, automatically they seemed to be more persistent than originally.

The breeding of any factor, however, has its value only in the purification of that factor. Only by repeating a factor in a family for successive generations do we feel that factor is definitely established. We must also in our breeding work keep the economic factors uppermost in our minds.

Breeding for livability is fine, but we must first start with hatchability. It has been five or six years now that we have used only males from hens that have hatched 85 per cent of fertile eggs. We like to have those hens high in fertility also, because I have found that an extremely persistent layer is sometimes a poor breeder from the standpoint of low fertility, or she may be absolutely non-fertile.

### Won First Laying Test in 1931

In 1931, we won our first egg laying contest, and the first year we won, we won two contests. One was a lucky break. We had been vaccinating for tracheitis. The reason we won the Maine Egg Laying Contest in 1931 was because our birds had either had tracheitis or had been vaccinated for it before going to the Contest. The breeders of other flocks there had not vaccinated their flocks for tracheitis and the birds developed it there. You might say that we won the first contest the first year through a fluke. We also won the Passaic Egg Laying Contest, so we didn't feel too badly about the fluke.

Since that time we have won ten egg laying contests and had the leading Red pen in 24 contests. In 1935, our Reds made a world record with 10 birds.

In 1936, we also had a high-rating hen. My contest pens throughout the past ten years have been composed of a pretty good cross example of my R. O. P. breeding flock. There has been no year for four or five years that I have not had nearly 10 pens in contests. These have been chosen from 13 to 17 different sires and from 50 to 70 different females, which should be a fairly good cross-section of a breeding flock.

### World Records Are Not All-Important

World records and 300-egg hens are, however, not the whole story. For example, in the world's record pen of 1935 in Rhode Island there were 13 birds. Seven were full sisters and six were half sisters. From the seven full sisters, today we have hardly any progeny. One brother, however, was a superior breeder and from that side we have developed and prolonged the blood in that family.

Why did not these birds prove to be good breeders? There were three reasons. They had extremely large eggs. Right from the start they laid standard eggs or better, giving us a high record under the point system. Eggs that are too large do not hatch as well. The ideal size for hatching eggs is around 24 to 25 ounces per dozen. Most of the eggs from these pullets as yearling hens were from 28 to 32 ounces per dozen. Therefore, they had a handicap from the start. Their hatchability was always very poor and the weak factor in that family was fertility.

They had the visual characteristics by their egg record chart; they were the best looking family we had at that time; they had the best color for a production bred flock, but evidently the factors for production were not pure in that family.

### Never Practiced Inbreeding

In all of our breeding work, we have not done any inbreeding or very close breeding. We have attained what results we have by purification, mating birds of similar characters together.

We are looking for a more all-around family, perhaps even with lower production in order to secure other important points. Our breeding program is, first, a growing program. The results as tabulated from the mortality, the number of culls, the percentage of good birds compared with the total put on range, are some of the leading points that we use in the selection of a breeding male to head our pens for the coming year.

First, the males must be vigorous, masculine but friendly. We do not like the too-vicious type, and we do not like the dopey type that hang off in the corner when we go in the pen.

He must have at least five good sisters, and a majority of them must show good production characters. The sisters and brothers must have 100 per cent brooder house livability, which is the first eight weeks, and 95 per cent range livability, 100 per cent freedom from range paralysis, and a very low percentage of culls.

### Examine Males Early

We examine all of our pedigreed males at from 10 to 12 weeks of age. Their growth and feathering are recorded at that time for future reference. We would not use a male from a family that had two or more culls, two or more bare-back roosters, two or more paralysis chickens, or two or more late-maturing sisters (which may be determined later in the fall), or two close relatives that have standard disqualifications.

### Hatching Program Then Studied

Next, the hatching program is studied. The dam must be productive during the breeding season of her second year. We must get a large number of chickens. I like to select a hen that starts off early in the winter under the rigorous conditions of the New England climate and which will lay right through the entire breeding season, which takes us up to the first of June.

Egg size must be between 26 and 28 ounces to qualify the use of a male from that particular hen. I have found that hens that lay 25-ounce eggs are more likely to be individuals that have laid just barely 24-ounce eggs as pullets. Genetically, they do not breed progeny for large egg size. Therefore, I emphasize the use of slightly larger than 25-ounce eggs for that reason; but I do not like to go over 28 ounces per dozen in the selection of a male. The lower hatchability and the inheritance of lower hatchability in the progeny of that individual is more likely than from those between 26 and 28.

The dam of the rooster in question must be 90 per cent fertile and hatch 85 per cent of fertile eggs. Her shell texture must be above average and shell color better than average, if possible.

We also consider the sire's hatchability with all the mates to whom he has mated—in other words, we do not use a son of a superior hen in a family that the sire is mated to 11 others and has given mediocre results.

We like to use males from hens older than two years, if possible, but under the present setup the number that qualify in all good points is still small. Therefore, the number of males from three to five-year-old hens that we use is rather insignificant.

### Eliminate Gray-Eyed Birds

A point to avoid is the selection of gray-eyed families, because they seem more likely to be the families that succumb to paralysis if there is any percentage of that disease on the place. Avoid also a family with a large number of culls, a large number of defects, or extremes in any particular factor, especially egg size.

Either we should develop a strain that will lay a larger first egg or we must delay maturity by feeding and management in order to obtain the same results.

### Large Families Are Most Valuable

I believe it is more important to use three-year-old hens and their sons that have large families than to use a five-year-old hen that laid 1,000 eggs when she is the only bird in that family, because I do not believe that the life of one individual in a family is indicative of long life.

Greater resistance to the present diseases on any breeder's farm is another point to emphasize. Resistance to paralysis, coccidiosis, and adult diseases are the more important.

Improved economic egg quality certainly must be stressed more in the future.

It is not what one generation will do, but what several generations will do under less intelligent management or in the hands of people who are not experienced in breeding which will make or break the breeder.

It is my ambition, when I am in a wheelchair, to have a grandson who can present me with pictures of his flock of a family, the hens and sires of which are over five years of age, whose sons and daughters live to be five years of age, and their sons and daughters live to be five years of age, all producing economically during that time.

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## *Egg Shampoos*

Beauty is hard to achieve. And achieved, it's hard to beat — and beauty still crowns its women with glorious hair. But actually, you know, it needs the services of an egg. Now it could do something for men along the same line, but that's where the men slipped.

Shampooing the hair at home is quite an industry. Why does our own industry make so choice a market an orphan? Be that as it may, Special Egg Shampoo scores as a hair conditioner.

Beauty salons catering to the best interests of their clientele are doing a large business with this special shampoo. The formulae vary slightly in proportions. But . . . . beat from four to six eggs, add two teaspoons to one tablespoon rum. Brush hair thoroughly before washing. Shampoo with the egg mixture and rinse with tepid water. Rinse thoroughly; dry in sunshine if possible.

Beauty authorities say that the egg shampoo, supplemented with brushing (and tonics if necessary), retains resiliency and natural color value, qualities of healthy hair.

—Kathryn Bele Niles, U. S. Egg and Poultry Magazine, Nov. 1939.

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# Serving the Industry Through the National Poultry Improvement Plan

By Berley Winton
Chief Poultry Husbandman
U. S. Dept. of Agriculture

*Condensed from a Talk*

DURING the past several years, poultry producers throughout the United States have been forced to resort to the use of more efficient breeding and husbandry practices in order to maintain a reasonably good income from the poultry enterprise. It is for this reason more than any other that producers have become interested in improving the quality of poultry breeding stock as measured by its performance to produce superior broilers, high producing laying stock, efficient birds for meat production or chickens which possess a combination of these qualities.

Many public agencies, such as the colleges of agriculture, the state departments of agriculture, the poultry and the farm press, the radio and the United States Department of Agriculture have had a profound influence on the poultry industry during the past 25 years as a result of disseminating information on the principles of breeding, feeding, incubation, disease control, and husbandry practices. All of these agencies have sponsored directly or indirectly educational work in poultry husbandry during this period, but the only nation-wide instrumentality for bringing about systematic poultry improvement work in the nation as a whole is the National Poultry Improvement Plan which was first proposed in 1925.

The idea of having a systematic poultry improvement program which would apply uniformly to all the States was so revolutionary that it was not accepted until in 1934 at the annual meeting of the International Baby Chick Association in Cleveland. The time between 1925 and 1934 is noted in poultry annals as a period of conferences on the part of industry members in states, regions and the nation, the primary purpose of which was to formulate a program for poultry improvement work.

### Review of the Poultry Industry

A brief review of the poultry industry in the United States between 1920 and 1934 will explain why it became expedient to place into operation the National Poultry Improvement Plan in 1935. For the country as a whole, the poultry enterprise was one of the most profitable phases of the farming business between 1920 and 1930. In 1929, the total value of chickens and eggs produced reached its highest peak, amounting to more than one and one-third billion dollars. During this period there was phenomenal expansion in the breeder and hatchery phases of the poultry industry, having been made possible by the introduction of a forced draft incubator and the admittance of day-old chicks to the United States mails in 1918.

Many people without previous

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knowledge or experience in the poultry business began to operate hatcheries. The desire to produce and to sell chicks, irrespective of quality, seemed to be the predominating idea among operators. This attitude, with a severe decline in the price level for poultry products and with keener competition developing, gave rise to an era of dishonest advertising and the adoption of unscrupulous practices among breeders and hatcherymen which resulted in a loss of confidence on the part of purchasers.

In 1931 there began a marked decline in the money producers derived from the poultry enterprise, and this continued until the low ebb was reached in 1933 when the value of eggs and poultry amounted to only 603 million dollars, or less than one-half what it was for each of the years from 1925 to 1930, inclusive.

In developing the national plan, it was to be expected there would be a diversity of opinion among individual breeders and hatcherymen from different sections of the country as to the exact content of its provisions and the methods of procedure to be followed in its administration. The original plan, in fact, grew out of the experiences of persons who had been most instrumental in developing state poultry improvement programs and was the best that could have been expected at that time.

### Objectives of the National Plan

From the very beginning, the objectives of the national plan have been clear and definite. They may be briefly stated as follows:

1. Improve the production and breeding qualities of chickens.
2. Reduce losses of chicks from pullorum infection.
3. Describe the breeding stock, hatching eggs, and chicks which are produced in conformity with the provisions of the plan with uniform terminology that is acceptable throughout the United States.

When one realizes that the yearly average egg production amounts to 100 eggs or under per hen, the need for establishing a program which will improve the production and breeding qualities of chickens becomes apparent. The fact that there are many flocks in every state whose yearly production is 200 or more eggs per bird lends encouragement to the attainment of this objective. Furthermore, cost account records show that as production is increased from 100 to 200 eggs per hen during the year, the labor income is increased by about 400 per cent.

The second objective of the plan, namely, that of reducing losses of chicks with pullorum infection, no longer has to be demonstrated except to the uninitiated. The disease is so wide-spread throughout the United States that all breeding flocks are subject to infection. Fortunately, we are familiar with the cause of this infection, and satisfactory techniques have been developed for its control at a low cost. With these developments there is no longer any logical excuse for a breeder or a hatcheryman selling breeding stock or chicks which are infected to any great extent, if at all, with this disease. It is unfortunate that diligence has to be exercised constantly year after year in order to keep this infection under control, but experience has demonstrated this to be the wisest procedure.

The need for uniform terminology to describe products of similar quality was recognized when the idea of a national plan was first suggested in 1925. As the hatchery business expanded, and as improvement work advanced in the states without any coordination among the states, the need for the adoption of uniform terminology became more apparent. These conditions prompted the development and use of the terminology incorporated in the plan. The prefix U. S. is common to all of this terminology and may be used by all those who are participating in the program.

### Characteristics of the Plan

It is appropriate at this time to discuss briefly the major characteristics of the National Poultry Improvement Plan. They are as follows:

1. It is nation-wide in scope. That is, it applies to all the states in exactly the same manner. State lines have been broken down except for administrative purposes.

2. It is voluntary on the part of states and individuals within states. This means that the members of the poultry industry of each state and individuals within participating states may or may not elect to participate in this program. However, when one does elect to participate in this program, he signs an agreement with his official state agency and agrees to comply with its provisions.

3. The plan provides for five progressive breeding stages and three progressive pullorum control classes. These breeding stages and pullorum control classes vary enough in their requirements to permit all those sincerely interested in an improvement program to take part. As the industry develops, the requirements in breeding and pullorum testing may be changed in order to insure continued progress.

4. The plan is administered cooperatively by an official state agency in each of the participating States and the Federal Bureau of Animal Industry. The duties of each are clearly stated in a written memorandum between each of the participating states and the Federal Bureau. This agreement is subject to renewal each year and may be withdrawn by either party on 90 days notice.

Although the National Plan has been in operation for only four years, its benefits are already apparent and will, I believe, become more pronounced in the future as the effects of this program are accumulative.

### Benefits of the National Plan

For your information I desire to mention some of the most apparent benefits of placing the National Poultry Improvement plan into operation.

When this plan was placed into operation, the public agencies in many of the states did not have underway a unified poultry improvement program. In fact, public agencies in a few states were promoting competitive and independent programs. With but few exceptions at the present time, all of the public agencies in the participating states are cooperating in a harmonious and an effective manner with breeders, hatcherymen, and flock owners in advancing the work of the National Poultry Improvement Plan. The necessity of having a single agency in each of the states with whom the Federal Bureau could work brought together representatives from most of the public as well as private agencies.

In the fall of 1938, more than 2,100 persons were engaged in selecting, testing and inspection work in conformity with the provisions of the National Poultry Improvement Plan. In addition, much voluntary service was rendered by employees of colleges of agriculture, State departments of agriculture, and livestock sanitary offices in promoting the national plan program.

Cooperation and coordination have not been confined to individual states. We have been during the past four years a most impressive demonstration on cooperation and coordination of effort among all the states engaged in the work of the national plan. During each of the past four years a conference on the national plan has been held for the purpose of adjusting the program to fit the needs of the poultry industry and to consider problems with respect to the administration of the program in the states and the nation as a whole. But before these conferences were held, participating members of the industry were given an opportunity to propose changes in the plan for the subsequent year or years. These proposals were then mimeographed and submitted to official state agencies for consideration and recommendation through delegates elected by participating members of the industry to attend the conferences. After the different questions were discussed at the conferences, those changes included in the revised edition of the plan were passed upon favorably by at least a majority of the State delegates. Thus, a democratic and fair procedure was used in making changes in the plan.

These conferences with an average attendance of three to four persons from each of the participating states have resulted in a broader knowledge of existing conditions and a more tolerant and sympathetic attitude for the improvement work that is being done in the different states. Furthermore, these conferences have been instrumental in bringing about a freer exchange of breeding stock, hatching eggs and baby chicks among members of the industry in the different states.

### Training Schools Held

Training schools are held annually by many of the official state agencies for the express purpose of disseminating the latest information with respect to selecting and testing stock to be used for breeding purposes. Breeders, hatcherymen, and flock owners attend these schools for the express purpose of becoming more proficient in the work called for in the plan.

The provisions of the plan permit the ready application of scientific research in the fields of breeding and pullorum control. It will be recalled that much interest has been shown by breeders, hatcherymen, and others in the advanced breeding stages of the plan during the past year or more. Those engaged in record of performance work have been regarded as among the most reliable and dependable sources of foundation breeding stock. But the science of genetics has shown that the proper techniques for the development of superior foundation stock are selection, trapnesting, pedigreeing and progeny testing. The application of these techniques are provided for in the Register of Merit breeding stage of the plan. In this breeding stage ample opportunity is given Record of Performance breeders to test the progeny of each family and determine its value on the basis of performance as measured in livability, egg production, egg and body weight, and as many other genetic factors as merit consideration.

The benefit that is most apparent to purchasers is the increase in livability of the chicks which result from more extensive and efficient pullorum testing work. Breeders and hatcherymen in the plan have not been satisfied to limit their efforts in the pullorum testing program to merely testing their hatchery supply flocks but they have also increased greatly their efficiency in the technique of pullorum testing. This achievement is a direct result of the splendid work being done in the state laboratories and at the training schools held annually by colleges of agriculture and the livestock sanitary authorities under the sponsorship of official state agencies and the diligent effort of those engaged in the administration of the National Poultry Improvement plan.

### Extent of Participation

Another method of measuring results of the National Poultry Improvement is the extent of participation. In 1939, members of the industry in 44 states participated in the program. Two thousand and thirty-eight breeder and commercial hatcherymen with a total hatching capacity of nearly 76 million eggs took part in the plan. This represents an increase over 1938 of 38 per cent in number of hatcheries and 25 per cent in hatching-egg capacity.

More than 42,000 flock owners with approximately 8½ million breeding birds had their flocks qualified during the past year to produce suitable hatching eggs for the cooperating hatcherymen. Three hundred and sixteen flock owners in 35 States participated in the U. S. Record of Performance breeding stage in 1939.

A much larger proportion of the breeding birds under the supervision of the plan are now being officially tested for pullorum disease. Only 57 per cent of the birds were tested under official supervision during the first year of the plan. This percentage increased to 65 during the second year, to 66 the third year, and this year 78 per cent of the birds in the plan were officially tested for pullorum disease. Our goal naturally is to have all National Poultry Improvement Plan flocks meeting the requirements of one of the U. S. pullorum-control classes, because this will result in less mortality among baby chicks.

The plan has stimulated interest in poultry-improvement work throughout the country. Since the plan was placed into operation, organized pullorum-control programs have been started for the first time in 14 states, record-of-performance work in 12 states, hatchery-improvement programs in 10 states, and flock-improvement work in 8 states.

In a few states, participation has been limited due to impractical regulations on pullorum control. In order to obtain the full cooperation of industry members, some of these states have found it necessary to modify their regulations. For example, prior to this date, participation in the pullorum-control phase of the plan in one of the cooperating states was limited to those who had their flocks tested by a licensed veterinarian. While for the most part the veterinarians were well qualified to conduct the test, the hatcherymen in this state felt that it was not practical for them to participate in pullorum control due to the high cost and the fact that they were not able to get their flocks tested at the time the flock-selection work was being done.

In the fall of 1938, the State Livestock Sanitary Board modified its regulations to permit trained laymen to test and, as a result, cooperation in pullorum-control work has increased from 40 hatcheries last year to 68 this year. The number of breeding birds tested has increased from 178,305 last year to 355,220 this year. The officials of the State Livestock Sanitary Board feel now that this change in policy has been of distinct benefit to the industry. More flocks are tested under official supervision and the general quality of the work, under the supervision of qualified veterinarians, is quite satisfactory.

### Expense of Program

From what has been said, we can draw the conclusion that real systematic poultry improvement work is an expensive process. But even with this handicap, it is quite obvious that many breeders, hatcherymen, and flock owners throughout the United States will continue to perform these services because they know it pays in cash as well as in satisfaction.

Breeders and hatcherymen engaged in poultry improvement work must from necessity make money out of the enterprise in order to remain in business. But this is difficult to do when such large majorities of stock and chicks are sold on a price basis without regard to quality. The only solution to this ever present problem is to educate purchasers that there are differences in the inherent qualities of chickens and that it is in their interest to recognize this fact when buying breeding stock, hatching eggs and chicks. Real improvement cannot be made by those who insist upon selling breeding stock and chicks on a price basis.

The gains which have been recited are substantial and important in themselves but their chief importance lies in their demonstration that a systematic improvement program can be placed into effective operation and to the credit of participating industry members and those engaged in its administration.

## *Inspect Houses at Night*

It is a mighty good plan to do as many commercial poultrymen do and go into the laying house once in awhile at night with a flashlight to see how the birds are behaving. It may be noticed that some spots on the roosts are avoided, which may indicate that it is a drafty section or there may be some other good reason for it, and an investigation should be made to clear up the difficulty. Perhaps closing certain windows or certain ventilators, or even the addition of solid partitions every 15 or 20 feet made the full depth of the droppings boards may help to break up any draft. It may be found that chickens are using only the front roosts; if this is the case, try raising the back roosts a couple of inches to get a better distribution of the birds.

It may be found that the pullets are not even using the roosts and, in this case, the use of a cleated runway from the floor to the roosts will help to get them to using them, or it may be necessary to place the pullets on the roosts by hand for several nights until they get the habit. Using a flashlight in the house also will permit the flock owner to find out if there are any weak or sick birds that remain in corners that probably weren't noticed during the day. It is also possible to detect broodies in this way that are still on the nests and remove them to a broody coop for breaking up. Much information can be obtained about the flock by doing this, and poultrymen that do it regularly find that it pays.

—American Poultry Journal, Nov. 1939.

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# POULTRY RESEARCH

## Vitamin A Requirements of Poultry

The vitamin A requirements of poultry, as reported by various different research workers, were reviewed (Proceedings of Seventh World's Poultry Congress) by R. M. Sherwood of the Texas Experiment Station in an effort to reduce the available information to a common denominator. The author concludes that the various reports indicate 125 to 175 International Units of vitamin A per 100 grams of feed are adequate for young chicks hatched from eggs laid by hens on adequate diets.

Chicks hatched from hens on low vitamin A feeds required much more A. Turkeys require twice as much A as chickens. Laying hens require at least 450 to 600 Units, and breeding hens 1000 Units per 100 grams of feed. This writer is inclined to consider the stated requirements for chicks to represent the minimal rather than the optimal requirements.

—Carl H. Schroeder, Everybodys Poultry Magazine, Nov. 1939.

## Shark Liver Oil as a Source of Vitamin A for Poultry

Shark liver oil proved to be a potent source of vitamin A for poultry in a test conducted by L. L. Rusoff and N. R. Mehrhof, Florida Agricultural Experiment Station, as reported in Poultry Science, Vol. 18, No. 5. The shark liver oil used in this study contained approximately three times as much vitamin A as U.S.P. XI cod liver oil having 3,000 units of vitamin A per gram. The investigators conclude that apparently young chicks can make good gains in weight up to 12 weeks of age with 120 U.S.P. XI units of vitamin A per 100 grams of feed.

## Effect of Restricted Feeding Time on Laying Hens

Body weight and egg production both declined rapidly in laying hens kept in batteries and provided an all-mash ration, when the birds were restricted to less than six hours of feeding time each day. Mash-fed hens in this experiment reported by B. R. Burmester and L. E. Card at the University of Illinois (Poultry Science, Vol. 18, No. 5), when restricted to short feeding periods, would eat continuously for more than an hour, when feed was offered, in an effort to get sufficient total feed.

Battery layers fed pellets could eat a given quantity of feed in a much shorter time, and thus were able to maintain body weight and continue to lay while on feeding schedules as short as two hours daily in one continuous feeding period, or 20 minutes every 12 hours.

## Value of Legume Silage as a Poultry Feed

Succulent red clover and alfalfa legume silage for growing birds and layers was tested at the Tennessee Agricultural Experiment Station by P. W. Allen, M. Jacob, N. O. Sjolander, J. A. McBee and I. H. Smiley, and reported in Poultry Science for September, 1939 (Vol. 18, No. 5).

A group of seven weeks old White Leghorn cockerels was fed all the birds would eat of a complete basic ration and made a gain in weight of 173 per cent in eight weeks. A comparable group, given the same ration plus all the red clover and alfalfa legume silage the birds desired, gained 214 per cent in weight in eight weeks. A third group of comparable cockerels fed the basic ration plus all the buttermilk the birds wanted, gained 215 per cent in the eight weeks.

White Leghorn pullets of the same flock of the same egg laying record, divided into two groups during the last week of December, were fed the same basic laying ration, but one group received, in addition, all the green, succulent legume silage the birds would eat. During January and February, the group receiving the silage produced 61 per cent more eggs than the other group.

## Importance of Riboflavin in Reproduction in Poultry

Vitamin G, riboflavin, was found to be a most important reproductive factor for poultry in experiments conducted by A. E. Schumacher and G. F. Heuser at Cornell University, and reported in Poultry Science for September, 1939 (Vol. 18, No. 5). Hatchability was increased almost immediately after riboflavin was added to rations deficient in this factor. Upon discontinuance of the supplementary feeding, hatchability decreased rapidly.

Schumacher and Heuser found that hatchability varies considerably with individuals and that improvement in hatchability by riboflavin supplementations depends upon the original level of riboflavin in the diet and the original response of the birds to that amount of riboflavin. Riboflavin injections in the birds and in hatching eggs did not improve hatchability, indicating that riboflavin probably must be transformed into some other product before it can be utilized.

Chicks hatched from eggs produced by hens receiving rations partially deficient in this vitamin show characteristic curled toes or nutritional leg paralysis. Down development also may be poor.

## Eye Color and Fowl Paralysis

The color of the chicken's eyes is of considerable interest to poultry producers in these times of "glass eyes," gray eyes, pearl eyes, etc., as the iritic form of fowl paralysis is popularly described.

L. Weinmiller of the Bavarian Poultry Institute at Erdingen observed (Proceedings of Seventh World's Poultry Congress) that seven months were required before the coloring of the chick's eyes was completed. In young chicks, the pupil can not be differentiated from the iris. The outline of the iris was not definitely marked even at 12 weeks of age. After 7 months there is a slight decrease in the intensity of the color of the iris—a sort of paling — which becomes noticeable in heavy layers. This phenomenon should not be confused with actual discoloration or change in color. He recommends that breeders who desire good eye color in their birds breed only from old birds that have retained good color of the iris.

Unfortunately, the author does not state whether the changes in eye color which he observed—not including the

paler coloring in heavier layers—is a constitutional defect, a symptom of disease or merely an inconsequential defect. He bears out this writer's experience that selection for eye color in young chicks is not such a simple matter and he increases this writer's suspicion that in the anxiety to control the iritic form of fowl paralysis by culling for eye color, some good specimens are being scrapped.

—Carl H. Schroeder, Everybodys Poultry Magazine, Nov. 1939.

## *Ladino Clover as a Poultry Range Crop*

There is much interest in Ladino clover as a poultry pasture in the New England states. It is a vigorous grower and produces an abundance of green material that is very palatable to chickens. In palatability, it is far superior to alfalfa or sweet clover, or, in fact, any of the clovers. It is gaining in favor because of its ability to come back after heavy grazing. It is often cut with a scythe and used as a soilage crop for birds in confinement or on bare range.

Ladino clover resembles White Dutch clover, except for its giant size. The plant, when once established, spreads by means of surface runners which take root to form new plants. The leaf stem may reach 12 inches in height, agronomists inform us.

It thrives best on moist lowlands, sufficiently drained and on fertile soils. Because of the danger of winter killing in New England, it is usually seeded in April. A common method is to use one bushel of oats as a nurse crop, 10 pounds of timothy, 2 pounds of red clover and 2 pounds of Ladino to the acre. Preparation of the land is similar to that for other hay crops. It requires moderate liming, authorities say, and applications of potash and phosphorus fertilizers at seeding time. It usually disappears during the third or fourth year and works best in a rotation.

There is much to be learned about pasturing it with poultry. Dairymen like to graze the pasture for seven to ten days and then rest it for two weeks. Perhaps a double yarding system with poultry will work best. Poultrymen have used it as a soilage crop for birds in confinement or on bare range. Eight to ten cuttings have been made with a scythe in a season. It should not be clipped too close. It has a high protein content and promotes growth.

—G. T. Klein, Poultry Tribune, September, 1939.

BACON AND EGGS is America's favorite breakfast dish, according to the results of a questionnaire answered by more than 47,000 visitors to Swift & Company's exhibit at the New York World's Fair, reports The American Produce Review for November 1, 1939. The Swift survey indicates that meat is the most important food on the American menu, with chicken rating third favorite meat dish. Bacon and eggs polled 48 per cent of the breakfast vote, with ham and eggs running second with 28 per cent. The latter, however, was chosen as the favorite for the more leisurely Sunday meal, the combination of late breakfast and lunch.

# Responsibility of Hatcheries in the Control of Poultry Diseases

By W. O. Ramshaw
Salt Lake City, Utah

*Condensed from a Talk*

POULTRY raisers generally are inclined to hold the hatchery responsible for all abnormal losses, with the exception of those due to obvious failures of equipment or something like a fire, or a windstorm which blows the brooder house away. While I do not know many poultrymen who brood consistently with losses of only 1 or 2 per cent, there are plenty of people who think they should have an adjustment whenever their losses exceed those figures.

We all know how the customers feel about the brooding losses, because we invariably hear about those immediately. What we may not realize, though, is the extent to which the poultrymen feel we are also responsible for the adult mortality.

Pullorum disease invariably gets the blame for baby chick mortality, and since we hatcherymen have told the public we could control this disease by testing, we are called on to make adjustments to cover the losses. The reasoning of the chick buyers is perfectly logical.

In the case of adult mortality, we have made no such claims, so those losses can't be pinned on us quite so effectively. With the exception of pox and tracheitis, which practically all poultrymen know can be prevented by vaccination, the adult diseases are also laid on our doorsteps. Since the causes of fowl paralysis, leucosis, etc., are not as yet readily apparent, the poultryman assumes the birds must have had the disease when hatched.

Occasionally, such a customer will come in and ask for an adjustment, or discuss the problem. More often, though, he decides it would probably be useless to claim an adjustment since they weren't guaranteed against those diseases, and even if a replacement were made, he would probably have the same results, so tries another hatchery next year in hope of eliminating the trouble. The point is, in any case where the cause of the mortality is not clearly understood, the hatchery gets the blame.

I do not think we should in any way be called upon to begin making adjustments to cover adult mortality. As a matter of fact, I am firmly convinced that hatcheries should not make adjustments on baby chick losses either.

### Adjustments Don't Always Adjust

Adjustments are granted on the theory that if you satisfy the customer you hold his business, but practically, it seldom works out that way for several reasons. In the first place, the adjustment is never entirely satisfactory to the customer, regardless of how generous it may be. Even if a cash refund is made, he still doesn't have the number of birds he wanted, or if a replacement is made, doesn't have them at the time wanted. Also, he considers it an admission that he was knowingly sold inferior chicks, and seldom buys again, unless the adjustment is on a replacement basis and of such size that he feels that he cannot afford to lose it. In those cases where the customer continues to buy after receiving an adjustment, it is usually necessary to give him an adjustment every year, for one reason or another, or he goes someplace else.

Breeding, feeding and management are the three principal factors determining both production and livability. We hatcherymen have no direct control over the feeding and management, so about all we can do is to use our influence to promote the use of better methods by our customers, and to see that they are provided with sound information and advice. Whether or not they will follow our advice, is, of course, another question, but a uniform policy among hatcheries of positively no adjustments would probably do more than anything else to impress upon the poultrymen the necessity for using better equipment and care.

### Control Over Breeding

In the field of breeding, however, we can exercise more control, and this is the field where our responsibility lies. Even though we may not do our own pedigree breeding, through our purchase of such stock we can control the efforts of those breeders to a marked degree, as they will produce for us whatever type of bird we demand. When it comes to mating the hatchery flocks, obviously, we have direct control over the basis of selection of such flocks.

In the past our efforts have been directed toward attempting to produce disease-free birds. This would be practical if it were possible to have absolute control over every bird and all sources of infection. Past experience shows that to attempt this over an area of any size is simply out of the question. There are entirely too many small flocks, to say nothing of wild birds, both of which provide never-ending sources of infection, over which no control can be exercised.

Being free of disease and being immune to disease are two entirely different matters, and the difference is the reason we have made no progress in reducing mortality by trying to develop disease-free flocks as the source of supply. Too often being disease-free simply means not having been exposed to infection. It is even more likely to indicate susceptibility than immunity, because some infection must be present in order to kill off the majority of the susceptible individuals and thereby prevent the reproduction of such individuals in ever-increasing numbers. When stock of this type is placed on the average farm, where the flock already present and the premises are anything but disease-free, it is not surprising that the results are often disastrous.

In this program of attempted eradication which we have been following, we have entirely ignored the very natural law we have unconsciously been fighting—the law of the 'survival of the fittest'—when we should have put it to work for us. It is nature's way of handling all problems of disease or environment. Those individuals capable of resisting the infections to which they are exposed and of adapting themselves to their surroundings survive, and the others perish.

### Must Analyze Customer's Needs

I do not mean by this that we should just fold our arms and let nature take its course. What we can

Presented at the Seventh World's Poultry Congress, Cleveland, Ohio, Aug. 4, 1939

do is to make intelligent use of the principal involved, and direct our efforts toward producing stock resistant to the particular disease organisms and other unfavorable conditions prevalent in the territory we serve. This will necessitate, among other things a much more detailed analysis of the actual requirements of the individual customers than we have ever before attempted.

Part of this problem belongs to the pedigree breeders, who have found, as they got into progeny testing, that some families were much more resistant to infection than others. When we buy stock from such breeders, we should pay particular attention to their livability records as well as production records, and give them every encouragement to devote even more attention to this question in the future than they have in the past.

### Can't Predict Breeding Results

We cannot, however, expect to develop disease-resistant flocks by depending entirely upon the pedigree breeders, for several reasons. In the first place, certain bloodlines may have been quite satisfactory on the original breeder's premises, but not at all resistant to conditions in the specific locality to which such stock may be introduced. This is especially likely to be true when shipping birds considerable distance or from an entirely different locality. Also, it is impossible to tell in advance what the result will be of mating such stock to other lines, so it can only be through a process of elimination and close observation that we can choose the lines suitable to our individual requirements.

We must also select our hatchery flocks on the basis of proven ability to survive and produce under conditions similar to those the chicks will have to face. If we intend to supply chicks to a community where paralysis has been a major problem, for example, we should avoid flocks from another community, or isolated flocks, where paralysis may be of minor consequence. Instead we should make a careful selection of the survivors in flocks known to have been exposed to that disease.

When we have a customer who consistently experiences heavy losses from pullorum, whose place we know is infected, we are simply inviting trouble by furnishing him with chicks from pullorum-free stock. Instead, we should give him chicks from a flock which contained a reasonable number of infected birds, from which we have selected the resistant survivors by testing. Our pullorum-free chicks should be reserved for customers who have first cleaned up their own flocks and premises and are willing at least to attempt to maintain pullorum-free farms.

It seems to me that our primary responsibility, as hatcherymen, in the curbing and control of poultry diseases consists of realizing that the breeding factor is an important one, and that since we have more control over that factor than anyone else, it is our responsibility to see that so far as breeding is concerned, every effort be made to accomplish results.

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❧ THE BRITISH government has set a maximum war price for home produced eggs of 54 cents a dozen, a London press dispatch reveals, according to the American Produce Review.

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# The I. B. C. A.'s Program in the Poultry Industry

By Reese V. Hicks

Executive Secretary, International Baby
Chick Association, Kansas City, Mo.

*Condensed from a Talk*

HERE in Cleveland was organized the International Baby Chick Association to which some of us have devoted our energies and the best part of our lives. Some of us have seen this association and this baby chick industry grow from nothing in 1916 until it is now outstanding in service to the poultry people.

Why has this association through these passing years of nearly a quarter of a century gone on and attempted to serve your industry? There must be something of service, something of use, not just joy and pleasure, because we Americans are peculiarly inclined to cling to the things that give us clothing and shelter and good entertainment, the very fundamentals of life itself. Unless our business is profitable, even our pleasures and sports soon lapse and become unpopular.

This association, which I have the honor to represent, makes me its working man in many lines of poultry work. We were proud in each instance when we went to Canada in 1927, London in 1930, Italy in 1933, Leipzig in 1936, that we were able to be one of the spearpoints, if not the very spearpoint, in securing from your national government the money to do the necessary contact work to make proper National exhibits at these World Congresses.

Why were we able to do that? Because you worked. You people back there in the country knew your congressmen and your senators and called them by their first names, while we fellows knew them only on the printed page. That has been the secret of our success: personal contacts through you members.

### Close to the Farmer

We are peculiarly one of the few industries that takes the farmer's product, and after we have received the eggs and hatched the chicks, we pass the chicks back to him. Most of the industries paralleling ours pass the product along to the consumer who either eats or wears it. We are close to the farm people for this reason.

The I. B. C. A. is interested in farming problems. It has been the pleasure of your association, when eggs and poultry have been involved, to go to the authorities in Washington where the association functions on national problems.

### Got Chicks Admitted to Mails

One of the great stimuli to this baby chick industry was the admission of baby chicks to the mails. It has been the pleasure of the association to work on that problem of getting service and help in delivering the chicks in good shape. Adjustment of rates, standardization of boxes so they would be packed conveniently and carry the chicks safely, have been association work.

Presented at the Seventh World's Poultry Congress, Cleveland, Ohio, Aug. 3, 1939

Your Board of Directors has now voted a substantial sum of money to ask the express people for a reclassification of the express rates which will mean, of course, immediate profit to you. It will mean to the farmer better service.

### Helped to Get Funds for Research

Many of you have visited with pleasure the great research plant at Beltsville, Maryland, a monument to the energy and thought of Dr. M. A. Jull, when he was the head of the poultry work in the U. S. Department of Agriculture. It was the pleasure of your association to assist in securing the proper appropriation in the agricultural bill that enabled that institution to be built. It is one of the outstanding institutions of the world.

### Secured Wage and Hour Exemption

In these rocky times the association has meant thousands of dollars in your pockets. We have brought about exemption from the Wage and Hour Bill and we hope from the Social Security Bill in the near future. We have brought about fair trade regulations that would enable fair methods to be practiced and thereby prevent the fellow who desires to practice unfair methods from injuring you and your customer.

Your officers have voted to continue, as they have in the past, the drive to increase the use of eggs and poultry in the United States.

When this association was organized, most of you know that the common method of hatching chicks was a small machine and the average farmer was very backward in the raising of those chicks. It required years and a great deal of effort and money to break down that resistance, but most of you know that hatcheries are as common now as threshing machines, canning plants, creameries, or any other similar operations. They are a part of our economic lives and we think nothing of them. We take them for granted.

To your association is due thanks for that attitude in the minds of the buying public. It has been accomplished because hatcheries are well able to serve the industry.

### Searching for By-Product Uses

For the past six or eight years we have shifted our attention to the increasing of consumption of our products. With every product, you have some of the by-products that are not profitable. In the hatching industry, we have a considerable amount of that through infertile eggs, dead germs, etc. We are tackling the problem in a constructive way to get the removal of by-products, so that you may have an added income. We hope soon we may report progress.

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AN ALABAMA housewife entered suit for $5,000 against a storekeeper for wounds inflicted by a rooster which was running at large in the store, according to a newspaper item.

AMONG the three-dozen eggs which S. E. Peterson, Chicago advertising man, purchased from the Guillaume Poultry Farm, Mascoutah, Ill., a few weeks ago was a double-yolker measuring 7½ inches in circumference the long way and 5⅞ inches in circumference the short way.

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# Diary of a Poultryman

By P. S. White

Egg Farmer, Wayne County, Ohio

*Reprinted from Everybodys Poultry Magazine*

**Nov. 1**—There are about 1,000 pullets still out on the range. Due to weather conditions, I deemed it advisable to put off the round-up for a couple of weeks. I wouldn't care to be put in jail this kind of weather, either.

Spent most of the morning in town, but it was all business and no monkey business, either. Ralph Treat and I had a long discussion on the state of the auction. The membership and volume is growing beyond all expectations. We will need a larger building sometime. Then I had a discussion with Will Snure of the cold storage locker plant, regarding the purchase of a quarter of beef. Winter will get here sometime — too soon, probably. After dinner, Howard Cobbler, the contractor, and I made a few momentous decisions on the new dwelling.

**Nov. 2**—These housed pullets are beginning to pick up in production. For the last three days there has been a very decided gain. The smaller or less developed birds that are in the north house are eating like a house afire. It has been my philosophy for a long time that the undeveloped birds, if given the proper chance, will come along O.K. Of course, some will be lost by the wayside, but the great big majority will snap out of it. The idea is to put them in a house by themselves and give them plenty of feed and good care. I think one reason they are small is because they are of a shy disposition, probably afraid of the larger birds. They are used to eating only a little more than enough to maintain life, not enough for rapid growth.

**Nov. 4**—The plasterer was slinging mud, as he called it, in the new dwelling all day. Cleaning day, and Harold was slinging droppings all over the soybean patch with a shovel. Took eggs in this morning and had a big argument about that elusive egg quality. Guess I did some mud slinging on my own hook. Anyhow, it was an honest difference of opinion. Probably I am too particular, a fuss button, so to speak. Frankly, I can't see why all eggs shouldn't grade high. The trouble is that the average producer doesn't take care of his eggs as he should. The auction boys notice a severe decline in quality, as soon as cold weather comes, evidently due to furnaces being fired.

**Nov. 5**—The pullets are just coming into production; naturally, they lay small eggs. Most of their eggs are going into mediums, 20 to 23 ounces per dozen, but the quality is high—extras and better. I still contend that the average producer does not take care of his eggs properly, that if he did, the average consumer would use more eggs. One "off" egg will cause the housewife to be suspicious of the other eleven regardless of their quality. More detailed attention on the part of the producer and dealers will cause a greater egg consumption than much high powered advertising.

**Nov. 7**—Monday morning; and we are starting all over again. For some

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(Everybodys Poultry Magazine, November, 1939)

reason or other, I got behind over the week-end in egg packing. As tomorrow is egg day, it was necessary to get that little detail of the industry corrected. And it is an important part of the work, too.

Like everything else, there is a right and a wrong way to pack eggs. Take, for instance, the simple operation of placing eggs in the fillers. An egg has two ends, the little one and the big one. This probably sounds silly, but as a matter of fact it is most important. The little end should be placed down; naturally, the large end would be up. If reversed, the weight of the contents of the egg is bearing down on the air cell. Dr. Mary E. Pennington, who is probably the best authority on egg quality in the country, says that such a practice will cause the egg to lose a grade in six hours time. In other words, an extra will grade a standard.

**Nov. 8**—It was a busy day hereabouts. Delivered the eggs, return load was excelsior for nests. Caught and vaccinated 195 pullets. The three north houses are beginning to approach capacity. So far there has been no picking. I think crowding the stock has a tendency to cause cannibalism. Was able to spare an hour to work in the new dwelling.

**Nov. 9**—Caught up another lot of pullets, vaccinated, banded, housed. Years ago I had a bad shot of pox, so ever since, the pullets have been vaccinated when housed. I use pigeon pox strain, and the pullets only are vaccinated. There has never been another case of pox on the ranch since that first epidemic. The boys tell me that I am lucky; maybe I am.

**Nov. 10**—More market birds to the auction; more feed on the return trip. More, more, more and I never get too much of the good and valuable things of life. Whenever the little truck goes to town, there is a return load. It makes no difference if there is feed or empty egg cases on hand, the truck is loaded both ways. Tomorrow the return load will be egg cases.

Caught about 65 pullets today, but as there were not enough to utilize a 100-dose bottle of vaccine, they are being held in the batteries. This was a bad day to catch them. For some reason or other, they didn't go in the houses. If a good, brisk rain should happen along, they would bee-line for shelter. Then activities would start for a fare-ye-well.

**Nov. 15**—It is the first day of the hunting season and there are a couple of hundred pullets still out on the range. I was just a wee bit dubious all day for fear some of these bloodthirsty hunters would start picking off the young stock. Fortunately, nothing happened.

The regular trip to the auction with the eggs took most of the forenoon as I had so many small items to buy. More electrical supplies, 2,000 paper napkins for the rabbit supper at Oak Chapel Church tomorrow night, Donnie's shoes that were left to be half soled a few days ago, a few joints of stovepipe — all of this is known as shopping or trading. I did all the work while Harold went hunting this afternoon.

**Nov. 16**—Someone circulates around on the range several times a day in order to catch those pullets that might happen to go in the houses. Today's total catch was 15 birds. Not many, 'tis true, but every one that is caught makes just that reduction left outside. I think that I am going to have more pullets than I had anticipated. Now, in this case, all I have to do to make room for some extra pullets is to sell some of these little ratty hens. Two coops of them were collected after supper for tomorrow's live auction.

**Nov. 17**—Pullet production in the three north houses is on the up and up. That's me, too, for I like to be on the up and up until some disaster comes along and mows me down. Today I thought everything was hunky dory, so I relaxed the eagle eye a wee bit. A short time later when I cast my eye in the east house, there had been a blowout, and the rest of the birds had mowed her down. Not only was she mowed down, but the flock seemed to take fiendish delight tearing the flesh from the bones. My row wouldn't be so hard to hoe if, when a case of this kind happens, the stock would use sweet reasonableness. But instead, the victim is purged to a fare-ye-well.

**Nov. 19**—The week's work is now caught up as tight as a ball of wax. The cleaning was put off until today, Saturday, so that Donnie could give us a lift with the work. He is a great help. Seemed like there was an extra amount of droppings to be removed, taking until the middle of the afternoon to finish cleaning. We vaccinated all the pullets that had been caught during the past few days. There were 72, and while this wasted a few "shots," I figured it was better to waste them than to hold the birds in the batteries. It must be an awful shock to a bird to bring it in off the range and crowd it in a battery.

**Nov. 21**—There hasn't been much demand for dried poultry droppings this fall, so we are using the fertilizer ourselves. The two-acre soybean patch has had weekly applications of the dropping board material since last May. It has been covered. Now we are starting all over again. The patch has been seeded to rye, which will be turned under in the spring. I estimate we are putting about 25 tons of chicken manure to the acre, which ought to grow soybeans on any man's land.

**Nov. 22** — We just fixed up the lamps in the automatic water fountains. When the stock gets off the perch tomorrow morning at 4 o'clock, there will be warm water to drink. The houses haven't been closed up for the winter yet, only a few of the burlap window coverings are in place.

**Nov. 23**—It's great to prepare for war in time of peace. That's me, when I guess right. Sometimes I don't guess right; then I have another guess coming; but sometimes it is too late. This morning it was cold, about 15 degrees above. And steam, well, it was coming off the drinking water. There were no frozen fountains to thaw and fill with hot water.

The B. and F. Transfer Co., delivered a box of fresh fish from Cleveland. A big trout stuffed with oyster dressing, that is the Thanksgiving Day dinner tomorrow at the White house.

After the feeding was done, I decided we should have more feed on hand to tide us over the holiday. It was getting dusk, traffic was heavy, and the vehicle in front of me suddenly stopped. I stopped quick; a foot on the brake is worth two in the grave any time.

**Nov. 24**—Thanksgiving Day. All the help is away and Donnie and I are doing the work. No new projects, as they say down along the Potomac, were undertaken. We just did the necessary work, but we did it right.

Cold, snow and high winds all day. I am thankful that the birds produced as they did, thankful for the baked trout Kid White served so well, thankful for the radio and Major Bowes' program, thankful that we are all well and the coal bin is full. Yes, I have lots to be thankful for.

**Nov. 25** — The weather was too rough to take the eggs to the auction; I have until tomorrow night at 9 o'clock to deliver them. Guess I must be getting old, but I don't care to get out and battle the elements just for the sport of it. I battle the elements right here on the ranch all winter, not for fun, but because I have to if I want to eat. It makes no difference how bad the weather is, the stock must be taken care of to the best of our ability. It makes no difference whether I get my meals on time or not, the stock must be fed on schedule. The stock comes first; that is the unwritten law.

More burlap screens on today and more straw bags in the eaves. The long houses are gradually being closed.

**Nov. 26**—It was a busy Saturday but the work is all done, even to packing the eggs. First thing this morning, I high-balled in with the eggs, with a load of corn as the return trip. Donnie gathered the eggs while Harold cleaned the dropping boards. After dinner I helped clean the boards while Harold scattered the manure on the soybean patch. Then all three of us pitched in on the feeding. Team work, that is what counts. In fact, we got through so early I had most of the eggs packed before supper.

**Nov. 30** — Had to make a special trip to town this morning for ½-inch pipe, street ells, ells, tees and a sink. Brought home two bags of dried buttermilk. We are going to mix it with hot water and sprinkle it on the mash in the hoppers with a sprinkling can. I think a half pound to 100 birds will be a good starter. The dry mash contains milk, so it is not a question of getting more milk into the birds, but rather a question of getting them to eat more mash; wet mash is more palatable than dry. Dry crackers often make a large mouthful, too.

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## *Cedar Shavings for Nesting Material*

Among the problems which trouble poultrymen, the one of finding a really satisfactory material for padding in the nests sometimes is very difficult to solve. Many eastern poultrymen have adopted a cedar bedding for this purpose. The cedar has the natural cedar odor, and it has been found that this odor is in no way imparted to the inside of the egg. It is claimed moreover that the cedar odor gives the bedding vermin repelling qualities, and helps suppress the natural odors found in a poultry house.

Cedar bedding does not sift out of the nests and neither do hens scratch it out. The cedar stays in the proper position in the nest and is claimed to be as near a natural nesting material as any that is available. From 200 to 250 nests can be made from a 100 pound bale and the nests will last for several months, provided they remain clean. There is practically no dust in cedar bedding.

—Poultry Tribune, Nov. 1939.

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# Sanitary Poultry Drawing

By W. A. Maw
Macdonald College
Quebec, Canada

*Reprinted from U. S. Egg and Poultry Magazine*

IN the past, dressed poultry was generally sold on the market in an undrawn condition. Today, however, eviscerated or full-drawn poultry is offered from stock which has been prepared under commercial conditions and held in a frozen state. The method used in drawing the carcass, to insure the strictest sanitation, is important. If the content of the entrails comes in contact with the carcass, there is the danger of bacterial invasion of the meat. Special care, therefore, should be taken to use a technique in the drawing operation which minimizes the possibility of breaking or cutting the entrails in the operation.

The following procedure is simple to carry out and will insure ease of operation, as well as avoid the unpleasant atmosphere so often prevalent where the operation is being done if the entrails of the stock handled are being continually broken.

All dressed poultry is covered with hair-like feathers, which should be removed by singeing when being prepared for the oven. The singeing should be done over an alcohol flame or the blue flame of a gas or oil stove.

### Removing the Neck, Crop and Windpipe

The neck is removed by making a cut on the back of the neck from the point of shoulder up to the head. In carrying out this operation, place the bird on the table with the head to the operator's left and the bird's back towards the operator's right side. Grasp the skin of the front side of the neck in the fingers and thumb of the left hand, thus drawing the skin tight across the back of the neck. The cut is then made and followed by grasping the neck in the right hand and drawing it loose from the skin from head to shoulder. The skin is then cut at the head.

The neck is now removed by cutting the muscle of the neck completely around at the point of shoulder, after which the neck is removed by a twisting action which disjoints the vertebrae. The head is now removed from the neck in a similar way, by making a cut around the neck and twisting the neck bones apart at the point of cutting.

The gullet, crop and windpipe are attached to the skin of the neck and are removed by tearing them away from the skin down to point of front body opening through which these organs enter the body cavity.

### Dislocating Lungs and Heart

In order to make the removal of the entrails from the rear of the body a simple operation, the heart and lungs are dislocated from the front opening by placing the first two fingers of the right hand into the body. The lungs are set between the rib bones, where they join the backbone and are easily removed by the tips of the fingers forcing them out of their position in a direction down from the backbone. One lung is placed on either side of

Institute of American Poultry Industries, 110 N. Franklin St., Chicago, Ill.
(The U. S. Egg and Poultry Magazine, October, 1939)

the backbone. Following the removal of the lungs, the fingers are forced down into the body cavity and moved around in a circular fashion to dislocate the heart.

The skin of the neck is now placed back over the shoulders and the wings are folded up and over the shoulder from the front, thereby holding secure the skin of the neck on the back.

### Removing the Leg Tendons and Shanks

The legs of the fowl have heavy sinews or tendons running from the shanks and feet to the muscling above. These tendons should be removed to insure the leg flesh being soft when cooked. The tendons are removed by cutting a slit along the outer side of the shank. The tendons may be separated one by one and drawn out by using either the fore-finger or a small skewer. Commercially, the sinews can be removed by breaking the shank crosswise and placing the foot in a V-shaped hook and pulling, holding the carcass by the upper leg. A mechanical device is available for this work if necessary.

In removing the legs, make a cut across the front of the leg joint and then force the shank backwards, thus dislocating the joint. The large tendon behind the joint is then cut. Do not cut the flesh of the leg above the joint when removing the shank, since in cooking the leg meat would be drawn away from the joint.

### Removing the Entrails

The entrails, which include all the internal organs (intestines, heart, liver, gizzard, lungs, crop and windpipe), are removed through an incision made in the abdomen. The incision to be made should be as small as possible and should be made along the line from the end of the keel to the vent. Do not cut the vent. Cut through the internal body fat, but avoid cutting the intestinal tract. As soon as the body opening is made, lift the intestines outside of the body, but do not detach them from the gizzard or vent. The intestines are located to the left side when the fowl is resting on its back. Place the left index finger under the intestines close to the vent and make an incision encircling the vent, thereby allowing for the entrails to be removed intact.

The gizzard is located at the right side and to the rear of the body cavity. The next operation is to grasp the gizzard in the right hand, holding the carcass steady with the left hand, and draw out the gizzard by a steady pull which should bring out all the entrails intact.

The heart, liver and gizzard, which are known as the giblets, may now be removed from the entrails. The gizzard should be detached from the intestines and proventriculus or stomach and drawn by making an incision through one of the thick sides. Do not cut directly into the internal cavity, since the inner sac can be detached without removing its contents. The heart is removed from the heart sac and the liver detached from the remaining organs. The bile sac is attached to the liver and must be removed. Avoid breaking or cutting into the bile sac to prevent the contents getting on the flesh of the liver.

### Removing the Oil Sac

The oil sac is located on the back of the fowl at the base of the tail. It is composed of a double sac with a small valve. It is removed by cutting under the valve towards the tail.

The carcass should be washed thoroughly inside and outside before being filled with dressing.

### Trussing the Legs

The legs are trussed to the body by making a double cut in the skin at the side and to the rear of the abdomen on both sides. The legs are put through these straps of skin to keep them in place when being cooked. If one wishes, the legs may be tied in close to the body by using white string, which is made secure by tying around the tail.

### Preparing a Split Carcass for the Oven

In some instances it may be desirable to split a carcass for certain types of cooking. In such cases the carcass may be split up the back before drawing, thus simplifying the work. The legs, head and neck are removed in the usual fashion, but the removal of the entrails is somewhat different.

The carcass is split from the tail to the head. A cut is then made around the vent to allow for the entire removal of the intestinal tract with the other organs. Hold the split carcass open with the left hand and grasp the gizzard in the right hand and draw forward, thereby removing all organs including the crop.

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## *Type in Turkey Breeders*

The breeders of Broad Breasted Bronze turkeys have found out, to their own satisfaction, that the same general principles of conformation that characterize all meat animals also apply to turkeys. We seek to avoid the gangling, long-legged, slow-maturing type in a turkey just the same as we would avoid it in a feeder steer. In the same manner, the feeder steer with a long face and narrow muzzle never made economical gains, so the snaky-headed turkey is one to dispose of.

Select your breeders from the birds that show type, the birds that are moderately short-legged, broad and flat over the back, carrying heavy fleshing and a wide breast. Avoid knobs on the breasts of your toms and do your best to get the breast and back parallel. This is rather easy to do in pullets, but in toms, where for years no one objected to a sail-boat type of breast, it is a harder matter. They can be found if you look hard enough. These same general principles of selection apply to all varieties of turkeys.

There are some breeders who are seeking extremes in size. They probably have their reasons for so doing, but it is wise to avoid extremes. In the Broad Breasts, a pullet weighing 18 pounds January 1 is large enough. In the other varieties, Standard weights provide the best guide.

The test of any good breeder is uniformity.

—Norbest Turkey News, Oct. 1939.

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THE RESEARCH DIVISION of the National Sausage Casing Dealers Association has come forward with the "turkeyfurter" to boost turkey consumption. H. H. Meyer, president of the Institute of Meat Packers, recently praised the "hot turk," and suggested that it be served at Thanksgiving Day football games on a roll with cranberry sauce.

# Turkey Feather Picking

By H. P. Griffin

*Reprinted from the San Diego Poultry Journal*

WHILE a cross section of the turkey flocks shows less feather picking than in some former years, still there is more or less of it going on. Where the picking has not been severe and the pigment is not spread under the skin, there is still time to cure the habit and turn out a flock of prime birds.

Where the extreme feather picking has existed and the blue or dark pigment has become diffused under the skin of the back, nothing can be done to remove this discoloration; all that remains is to keep it from spreading. The pigment, once it is distributed under the skin, is, like tattoo ink, there for life.

### Causes of Feather Picking

There are several causes for feather picking. Perhaps it originally starts where the poults are fed mash and have learned to wipe their bills on another bird's feathers, to clean the bill. It also may start in overcrowded brooder or battery houses, particularly where the ration has not been sufficiently coarse to supply the bulk or fibre requirements of the birds.

To put the matter a bit differently, there are two kinds of feather picking, that which satisfies a craving for more fibre in the ration and that which is merely a vicious habit. The former is more easily cured.

### Coarse Feed Best

Turkeys are built to convert large quantities of coarse food into meat. They require a certain amount of coarse feed. The most successful of the growers who mix their own feeds are those who grind it extremely coarse. In just that same measure, one legitimate criticism of most commercial mashes is that they are ground too fine. Where the mash is reasonably coarse and where the birds receive a supplementary ration of soaked rolled barley and alfalfa, there is seldom any feather picking experienced. Again, where a damp mash is fed at least twice a day, this has a tendency to reduce and even cure feather picking.

Perhaps the most widely used preventive against feather picking is to stretch fine mesh wire or even baling wire along both sides of the feed troughs, about 6 inches above the sides of the trough. The turkeys with mash in their bills, take hold of the wire and use it as a scraper—just as they use another bird's feathers — to clean their bill.

### Increase Bulk

Where a flock has been overcrowded and picked up feather picking as a vicious habit, the first thing to do is to change the environment or in other words, give the birds more room. It almost always is true that these birds have lacked fibre in their ration, so supplement the mash and scratch ration by soaking barley, preferably rolled, in one of the milk derivatives or in water, over night, and then, just before feeding, mix 50 per cent bulk alfalfa meal with barley. This will add the necessary bulk to the ration, give the birds a change from their ordinary diet, and cause their feathers to become much softer and more abundant. As has already been stated, the damp mash mixture has a tendency to stop the feather picking.

San Diego Co-operative Poultry Association, San Diego, Calif.
(San Diego Poultry Journal, Oct. 25, 1939)

We have heard of growers who stopped this practice by entirely deserting their mash feeding for a time and forcing the birds to eat straight scratch, quite a proportion of which was oats and barley. The danger in this practice lies in the possibility of throwing the birds badly off feed.

Still another artifice sometimes used, where less drastic means fail, is to put an ordinary hog ring through the lower bill. The ring keeps the bill from entirely closing and thus prevents the bird from getting hold of a feather firmly enough to pull it, yet at the same time does not prevent the bird from eating.

### Trimming Back Upper Bill

The most drastic course of all and one which will work where other means fail, is to severely trim back the upper bill, cutting it back until it bleeds quite freely, and then searing over the raw end with a soldering iron to prevent the loss of blood. This method will effectively stop the picking and, if the ration is changed to supply the needed requirements, there is little danger of recurrence once the bills grow out again.

### Shift to Pellets May Help

Still another method used at times is to change from mash feed to pellets. Here again the pellets remove the tendency for the bill to become clogged and the birds have no necessity for wiping it off on anything.

While a slight amount of pigment or blue around the tail head of a bird will not throw it out of the prime class, a regular blue-black cannot be graded above choice under government—or for that matter, any other—grading. Birds that have a bad case of feather picking are more apt to kill other birds than is the case with a normal flock. If you have such a habit among your birds, get after it at once.

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## *Turkeys on the Installment Plan*

In some places folks are buying turkeys for Thanksgiving on the installment plan. For several weeks now they have been paying the butcher 50 cents a week and when Thanksgiving arrives, their turkeys will be all paid for!

There's always something new — and that's the latest! What interested me most was that one corner grocer, who is accepting these installment payments, has already sold 54 turkeys for Thanksgiving!

—Frank Priebe's Weekly Letter to Poultry Raisers, Nov. 4, 1939. Copyrighted.

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AT THEIR Lanark, Ill., plant, Wilson & Co. are putting dressed poultry through a "pre-seasoning" process. On the boxes and on each bird is a label stating that the birds "have been seasoned with milk whey, salt and spices; seasoning ingredients not exceeding one ounce per pound carcass weight." The reaction of the retail trade in Chicago so far is reported to be favorable.
—The American Produce Review, Oct. 18, 1939.

# Opening Midwest Markets for Quality Eggs

By R. E. Cray
Poultry Extension Specialist
Ohio State University

*Condensed from a Talk*

UP until five years ago, most producers of good quality eggs in Ohio had to seek eastern outlets in order to get a premium for their good quality eggs. With the lower egg prices of the 30's and no corresponding decrease in the cost of transportation, this marketing function has become a more important factor in the cost of distribution. Then, too, there has been a constant expansion in the development of good quality eggs.

The educational programs of the state universities through the extension service and the very effective work of the poultry magazines and the farm press have emphasized the need of producing good quality eggs, so that today throughout the country we have a much larger percentage of our eggs being produced under more nearly ideal conditions than ever before, and we have an increasingly large number of producers caring for their eggs in order to preserve their quality. We also have an ever increasing number of distributors who are improving their facilities to handle good eggs and who are appreciating what a perishable product the egg is and its consequent need for refrigeration and rapid movement.

With the tendency of a few years ago for all producers and distributors of fine quality eggs to ship these eggs to New York and eastern markets, they naturally soon lost the premium which they once received for good quality eggs in these markets.

### Quality Egg Outlets Were Needed

It was obvious that we needed to expand our market outlets for quality eggs and surely people in Cleveland and other Ohio cities would like to get good eggs. But no — the egg trade always maintained that Cleveland or Dayton or Cincinnati was just a junk market and that housewives would not pay any premium for good quality eggs. So the good eggs were shipped out of Ohio to eastern cities and replaced by lower quality eggs from states farther west. This was true, of course, because Ohio does not produce quite enough eggs to supply its own demand.

This, then, was the fundamental problem—the trade would not believe that consumers would buy good eggs, and, consequently, made little effort to supply them good eggs. If we analyze the problem why consumers were not willing to pay a premium for good eggs, we can come to but one conclusion and that is: results of consumers' efforts to purchase good eggs from the regular retail food distributors in Ohio have been discouraging and in many of our cities still are very discouraging.

Purchases of so-called fresh eggs by the supervisor of government egg grading made annually during the last four years from leading retail stores in several Ohio cities have failed to show any relationship between the price paid for eggs and either the quality or the size of the eggs purchased. In Columbus, as an illustration, there was a difference of 21 cents between the cost of the highest priced eggs and the lowest priced eggs purchased on the same day, and the lower priced eggs were the better!

Presented at the Seventh World's Poultry Congress, Cleveland, Ohio, Aug. 5, 1939

Much progress has been made toward the solution of this problem by many of the eastern states through so-called "fresh egg legislation," but in Ohio practically all eggs, regardless of their quality, are sold as "fresh eggs."

Most Midwest housewives are price conscious, so that Midwest cities are consequently still predominantly low-price egg markets, yet during the last few years it has been possible in Ohio to start well-planned and carefully executed programs of retailing quality eggs.

### The Fisher Quality Egg Program

In Cleveland, the Fisher Brothers Grocery Company, a local chain of approximately 300 quality food stores, is demonstrating that the accepted philosophy of the egg trade that Midwest housewives will not pay a premium for good eggs is wrong, provided a retailing system is developed that will guarantee consumers good eggs when the premium is paid.

Despite previous efforts of this organization to handle good quality eggs, numerous complaints were received from customers each year during the hot summer and autumn months. It was difficult to get eggs of uniform good grade. Distributors made the grades to suit the condition of the market; during the spring when good eggs were plentiful, everything worked smoothly, but during the autumn when good eggs were scarce, the grade requirements were lowered and consumer complaints were common.

A uniform product must be assured, and, consequently, the eggs were packed under government supervision, and every carton was sealed with the government certificate of quality.

### Certificate Wins Confidence

The use of the government certificate of quality was fundamental and essential in securing the confidence of the consumers that here were eggs of superior quality — uniform and dependable.

Producers had given much attention to the problems of quality egg production and the proper handling to preserve quality. They had studied grades and gained confidence in the fairness of the government egg grading program, but they had given little attention to the problems that might arise in the distribution process after the eggs left the country packing plant. This had proved to be an almost fatal oversight, because it was a clear case of the whole program being no stronger than its weakest link. The weak link was the failure to develop any program to secure consumer acceptance of the quality egg program.

Consequently, Fishers approached the problem with caution and a detailed program was developed, criticized, built and rebuilt by the chief executives of this organization before any publicity or advertising was released. The fact that the chief executives worked out the program meant that it commanded constant attention. Attempts have been made by managers of the egg departments of other chain organizations in Ohio to develop quality egg programs, but because the program lacked the interest and support of the chief executives, it failed to get the support of the store managers.

### An Educational Job

The thoroughness with which the details of this program of retailing government graded eggs was developed and the precision with which it has been carried out, are doubtless factors fundamental to the success of any large-scale quality egg retail marketing program in the Midwest. The program involved a considerable amount of educational work.

First, the store executives, who on the basis of their past experience were reluctant to believe that good eggs were obtainable from Ohio producers during the summer months, had to be convinced that a supply was obtainable.

Second, the store managers, who previously had handled eggs as any other commodity, had to be impressed with the perishability of eggs.

Third, consumers needed to be educated to the fact that eggs of guaranteed quality were available at the Fisher Store in their neighborhood.

The supervisor of state-federal egg grading in Ohio and the poultry extension specialists held meetings with the store executives, store supervisors and store managers to explain what was involved in the production of quality eggs, how eggs must be handled by farmers, processors and retailers to preserve that quality and how the quality of the different grades is determined by the candling light.

The problem of educating the consumer was more complicated and was accomplished largely through developing the advertising campaign into a consumer educational program.

The advertising and sales promotional literature emphasized the cooperative responsibility of the four agencies involved in the program: the Ohio farmers who produced the eggs, the Ohio Farm Bureau Cooperative Association which collected the eggs at country points, the United States Government which made the final inspection and supervised the sealing of the cartons, and the chain organization store, which rushed the eggs to the consumer.

A competitive store used phrases like the following in its advertising to convince consumers of the quality of eggs they sold:

> "None of the chickens that produced these eggs speak French, wear evening gowns, or drink Martinis, just the old-fashioned, home-loving kind that rise early, work hard, and go to bed with the chickens and they sleep in feather beds too. Just good eggs—breakfast, lunch or dinner—one crack and everyone smiles—that's really fresh."

### A Typical Fisher Egg Ad

Compare the actual information regarding the quality of eggs offered for sale in the above advertisement with a typical Fisher advertisement showing Uncle Sam holding a carton of White Gem Eggs and pointing to the certificate of quality with the following statement:

> "Don't take our word for it—Uncle Sam certifies these eggs.
>
> "As a matter of fact, we've told you our story in the headline above. Let us merely repeat the steps in the new egg deal by which Fishers have placed Government-certified Fresh White Gem eggs in every Green and Gold Food Store.
>
> "First: White Gem eggs are laid on nearby Ohio farms, by hens bred and scientifically fed, according to formulae developed by the Ohio Farm Bureau Cooperative Association to produce eggs of quality.
>
> "Second: The Ohio Farm Bureau Cooperative Association collects these eggs, candles and grades them, and rushes them to the Cleveland Terminal, largely during the night.
>
> "Third: Inspectors licensed by the Federal Department of Agriculture as well as by the State Department, again grade these eggs, certify their quality, supervise their packing into cartons sealed with the dated certificate of quality.
>
> "Fourth: Fisher's Speedee Special Delivery trucks rush them to every Green and Gold Food Store."

### Billboards Used in Advertising

In addition to half page advertisement in the Sunday newspapers over a period of several weeks the organization also used 68 billboards scattered over the city, to tell the story of the quality egg program. The stores used large display signs and special counter display signs emphasizing the Government "Certificate of Quality" used to seal the cartons of White Gem Eggs as a guarantee of satisfaction to the consumer.

A display truck with float featuring the egg program, was run through every section of the city during the first few weeks and the trucks delivering foods to the Fisher Stores all carried signs telling about the quality egg program.

The program also involved changing physical equipment and the development of proper methods of handling quality eggs by the retail organization itself. Eggs had previously been delivered to the stores once or twice a week, with the other merchandise, but with the development of this program, three new trucks were used to deliver eggs and butter only. These trucks were insulated on the top, sides and bottom with 4 inches of cork, and a schedule was worked out to guarantee delivery to every store three times a week.

### Guard Against Overstocking

The truck drivers are not salesmen, and, therefore, have no tendency to overstock the stores; in fact, it is the driver's responsibility to limit the store manager to a 2-day supply of eggs. The store supervisors further guard against the egg stock accumulating by checking the dates on the certificate of quality sealing the cartons and any carton that is 5 days old is broken open and the eggs placed in the lower grade sold by the stores. The eggs are kept in refrigerator show-cases in the stores and empty cartons are used in the counter displays. This practice has since been generally adopted during the summer months by the better retail organizations in Cleveland.

The guarantee of satisfaction to the consumer was further guarded by inserts placed in the cartons telling the consumer how carefully the eggs had been handled until the time she had purchased them and urging her to keep the eggs in the refrigerator until they were used.

### Complaints Practically Eliminated

Perhaps the greatest source of satisfaction to the Fisher organization in this program of retailing government graded eggs has been the almost complete elimination of complaints from customers. Thirty-nine complaints were received from the first 4,000,000 dozen eggs sold in cartons sealed with the Certificate of Quality! These complaints were immediately investigated, not by a member of the chain organization, who would in the eyes of the consumer make excuses for their mistakes, but by either the government inspector or by a member of the Farm Bureau Cooperative Association; 22 of the complaints were found legitimate.

### More High Grade Eggs Sold

This chain organization has always sold two grades of eggs: one a fine quality high priced egg, the other a lower priced ordinary quality egg. With the adoption of the program to guarantee the consumer fine quality eggs by virtue of sealing the cartons with the government certificate of quality, the percentage of the total volume of eggs represented by the high quality grade has shown a material rise.

During the last two years a fine quality medium size egg has also been sold during the high-price season with a tendency to keep people using the fine quality eggs throughout the year, although they shift from the large to the medium size during the high price season.

The publicity given to the sale of good eggs has resulted in the other large retail organizations in Cleveland selling better quality eggs, too. Other chain organizations usually sell eggs at a substantially higher price in Cleveland than in other Ohio cities, even though they carry the same brand name, but examination has always shown that the eggs sold in Cleveland are better quality eggs.

The publicity given this program has no doubt helped to expand the demand for quality eggs in all northeastern Ohio. The volume of the Wooster Auction eggs which are going to Ohio outlets has increased about 700 per cent in the last 7 years, and during the first year's operation of the Versailles Egg Auction in western Ohio, approximately 55 per cent of the eggs were sold in northeastern Ohio markets.

### Rules for Developing Quality Outlets

Briefly summarizing some of the things that appear to be fundamental to the development of outlets for quality eggs in Midwest cities:

First—would be the need of guaranteeing quality to the consumer through the use of government grades and the sealing of the carton with the Certificate of Quality.

Second—The need of working with large retail distributors in promoting the program in order to have a large enough volume to make possible a good consumer educational program and sales promotion on a scale large enough to be effective; make advertising, consumer education.

Third—The development of a system of distribution from the farm to the consumer in which there is no loop hole to permit the deterioration of the quality of the eggs.

Fourth—The need of selling medium size high quality eggs during the high price season in order to keep consumers using good eggs through the year.

Fifth—The development of "Fresh Egg Laws" or similar legislation to prevent low quality eggs being offered as fresh eggs.

Sixth: Secure the interest and participation of the store executives in the development of the program.

Seventh: Careful investigation of all complaints by disinterested party and elimination of causes of complaints.

Eighth: Realization of retail merchants that business can be built through retailing of perishables rather than stables which can be purchased anywhere.

◄◄ THE NATIONAL EGG COLLECTION, an agency established through the efforts of Poultry World, London, England, has taken up the task of gathering eggs for the sick and wounded members of the British fighting forces in hospitals both in England and abroad.

# VIEWS OF THE EDITORS

## Some Folks Seem to Have All the Luck

Haven't you heard them time and again? Expressions like these?

"Oh, of course Joe's getting good production. He's always lucky."

Or, "Jake's got a way of handling cows that I don't seem to have. Sort of a knack, I guess."

Or, "Bill seems to have a specially good farm for chickens. Never seems to run into trouble like the rest of us."

True enough, there is a certain amount of luck in this world. But in about 99 cases out of 100, if we sit down and be really honest with ourselves, we can usually find a definite reason why we aren't as "lucky" as Joe or Jake or Bill. The truth usually is that the so-called "lucky boys" have used better judgment in doing the right thing at the right time, and never letting their work get out of hand. They really have been buying their "luck"—paying for it with more concentrated thinking, and more careful planning.

Here's a case in point. Last winter, the writer called on a poultryman who was having "bad luck." A short time before he had been having "good luck." In the fall, his pullets had laid around 60 per cent. Then he saw a chance to buy some more pullets at a good price. These other pullets were also laying 50 per cent or better. Why not combine the two flocks? His laying house was big enough to allow 4 square feet of space per bird to the combined flock. It looked like a good investment.

Within two weeks after combining the two flocks, his production had dropped to ten eggs a day. What was the matter? One detail. The house didn't have good enough ventilation to carry off the moisture from so many birds. Plenty of floor space but not enough ventilation. The floor got mucky and the birds got chilled. Rather sit on their feet than walk up to the mash hoppers. The owner knew the cause of the trouble and was "going to fix it right away." But in the meantime his flock had become an expense rather than a source of income.

As this example demonstrates, success with poultry and livestock doesn't just happen. It usually comes to those who think through all the details of a carefully-rounded-out-plan—and then work accordingly. Sure, it's hard to think and plan like that. Harder, perhaps, than any physical work we've ever done. But it pays. It brings us "luck."

—Checkerboard News, October, 1939, Published by Ralston Purina Company.

## A Good Turn for Poultry Raisers

It looks as if President Roosevelt did a good turn for the poultry raisers in this country when he started all the argument about what day Thanksgiving should be celebrated.

If it had just been moved up a week, it wouldn't have made much difference to us. But when a good many states flatly refused to change the traditional date, the situation began to look good from our point of view.

About half the states will celebrate on November 23 and the other half on November 30. Colorado and Texas really got into the spirit of the thing. They are going to celebrate both days and, in addition, Colorado has set November 18 as Turkey Day. We have heard reports that a town in Wisconsin plans to celebrate every day for a week.

With everyone feeling so independent about the matter, meat markets have decided there's no telling which day their different customers will decide to celebrate and they plan to stock up on poultry for both days—just to be sure.

Stewards on dining cars will have their problems. It will, for example, be Thanksgiving when trains leave Chicago November 23. But when they get into Ohio — or Iowa, if they're traveling west—it will be just another Thursday there. To be safe, they will have to serve Thanksgiving dinners both days!

So, in all the confusion, more poultry than usual will undoubtedly be sold.

—Frank Priebe's Weekly Letter to Poultry Raisers, Oct. 28, 1939.

## *Fewer Breast Blisters with Roosts in Batteries*

A very large poultry producer in Pennsylvania, who markets several hundred thousand chickens each year, employs a corps of workers whose sole job is to dress poultry. Many of his birds are raised in batteries and the problem of breast blisters was often present. Recently, upon the suggestion of a battery manufacturer, he installed small roosts in his batteries and claims that by so doing he has reduced the percentage of breast blisters to only 2 or 3 per cent. On one group alone, he saved several hundred dollars by following this practice. The birds are compelled to roost when they are only three or four weeks of age. The roosts are flat, approximately two inches off the floor and are wide enough so as to protect the breast bone.

—H. C. Knandel, Poultry Tribune, October, 1939.

## *Turkeys in Season and Out*

Turkeys for years have been served out of season in restaurants and hotels, but the usual source of supply has been frozen birds of the previous year's production. Now fresh birds are available most of the year.

Although squab or broiler turkeys long have been known as a special dish in certain sections of the South, particularly New Orleans, there has been evidence during the present year of an increasing use of this type of bird. Squab turkeys are young birds of good flesh which have little fat and are cooked either by broiling or frying. A substantial premium in prices must be obtained for this type, however, for profitable production.

—J. H. Radabaugh, The Agricultural Situation, Oct. 1939.

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# POULTRY STATISTICS

## Hens on Farms—Rate of Lay

**Number of Hens Per Flock, and of Eggs Laid Per Hen and Per Flock, First Day of Month**

| Geographic Division | Layers per flock | | | Eggs per 100 layers | | | Eggs per flock | | |
|---|---|---|---|---|---|---|---|---|---|
| | Jan. 1 | Sept. 1 | Oct. 1 | Sept. 1 | Oct. 1 | Aggregate Jan.-Oct. | Sept. 1 | Oct. 1 | Aggregate Jan.-Oct. |
| North Atl. | | | | | | | | | |
| 1928-37 (Av.) | 96.9 | 73.0 | 79.6 | 38.7 | 28.0 | 424 | 28.4 | 22.1 | 357 |
| 1938 | 96.7 | 76.9 | 81.4 | 39.0 | 31.3 | 462 | 29.8 | 25.4 | 393 |
| 1939 | 98.4 | 70.7 | 79.3 | 41.8 | 33.3 | 464 | 29.5 | 26.4 | 386 |
| North Cent. | | | | | | | | | |
| 1928-37 (Av.) | 115.7 | 82.0 | 88.5 | 32.9 | 25.0 | 369 | 27.2 | 22.2 | 367 |
| 1938 | 102.4 | 74.9 | 82.1 | 35.9 | 27.4 | 414 | 27.1 | 22.5 | 370 |
| 1939 | 110.4 | 79.2 | 85.8 | 36.3 | 26.5 | 410 | 28.9 | 22.9 | 390 |
| South Atl. | | | | | | | | | |
| 1928-37 (Av.) | 60.1 | 46.8 | 50.4 | 30.6 | 24.5 | 370 | 14.1 | 12.3 | 191 |
| 1938 | 55.8 | 46.3 | 48.9 | 32.2 | 27.6 | 406 | 14.7 | 13.5 | 200 |
| 1939 | 59.9 | 46.5 | 50.8 | 34.1 | 28.8 | 408 | 15.4 | 14.6 | 205 |
| South Cent. | | | | | | | | | |
| 1928-37 (Av.) | 66.8 | 50.6 | 55.4 | 27.1 | 23.6 | 353 | 13.8 | 13.2 | 200 |
| 1938 | 59.3 | 47.0 | 53.9 | 30.3 | 26.3 | 393 | 14.3 | 14.2 | 207 |
| 1939 | 63.6 | 50.8 | 56.5 | 30.8 | 24.1 | 384 | 15.3 | 13.8 | 215 |
| Western | | | | | | | | | |
| 1928-37 (Av.) | 74.0 | 59.3 | 61.5 | 38.6 | 30.6 | 429 | 23.0 | 18.8 | 280 |
| 1938 | 71.1 | 58.3 | 61.5 | 40.8 | 33.1 | 445 | 23.8 | 20.4 | 284 |
| 1939 | 72.6 | 56.8 | 61.8 | 39.9 | 32.2 | 446 | 22.7 | 19.7 | 281 |
| United States | | | | | | | | | |
| 1928-37 (Av.) | 86.0 | 63.5 | 68.6 | 32.7 | 25.5 | 377 | 20.4 | 17.3 | 276 |
| 1938 | 77.6 | 59.8 | 65.6 | 35.3 | 28.2 | 417 | 20.7 | 18.3 | 283 |
| 1939 | 82.8 | 62.1 | 68.0 | 36.0 | 27.5 | 414 | 21.7 | 18.5 | 293 |

The number of layers in farm flocks on October 1 was almost 4 per cent larger than on that date last year, although still 1 per cent below the 10-year (1928-37) October 1 average. The seasonal increase in numbers of layers from September to October this year was 10 per cent, the same as occurred last year, and compares with a 10-year average seasonal gain of 8 per cent for that period. The number of pullets not yet of laying age was 6 per cent greater than last year, 21 per cent greater than the 5-year (1930-34) October average and the highest in the record. Some further gain in number of layers over last year's numbers is to be expected as these pullets enter the laying flock.

The present number of layers is only .9 per cent below the 10-year (1928-37) average, which, however, includes a number of bad drought years. Numbers at present are about 5 per cent below the October 1 average for 1925-29. While numbers in the North Atlantic and East North Central States show increases over the 1925-29 average, all other groups of States are lower and the West North Central Division is still 12 per cent short of numbers in the earlier period.

While the number of layers on October 1 was greater than last year, the average egg production per layer was 2.5 per cent less, and it was almost 5 per cent smaller than in 1937. Aside from those two years, egg production per layer was greater than in any other October of the 1925-39 record. While the rate of laying was lower on October 1 this year than last for the country as a whole, it was higher in the Atlantic and East North Central Areas. The decrease in the remaining areas may be related to the developing drought conditions in many central and western States. In all areas, production still remains higher than the 10-year (1928-37) October average.

While numbers of layers are still somewhat short of numbers 10 years ago and appear particularly short in view of the increase of about 8 per cent in the consuming population since then, the production of eggs per capita on October 1 was almost as great as in 1930. The October 1 average production per flock reported by crop correspondents this year amounted to 18.5 eggs, compared with 17.6 for the years 1925-34. This is a gain of 5 per cent over the October average for 1925-34. The indicated present per capita production of eggs is, therefore, only about 3 per cent below the average for that date during the 10 years, 1925-34.

This maintenance of the total egg production per capita almost up to the level of 10 years ago, arises from the greatly increased production of eggs per hen. This increase in rate of laying is most pronounced in the winter and fall months when normally many hens are not laying, and least in the spring and summer when most hens normally are laying freely. The gain has resulted from improved methods of care and feeding and from the rapid increase in the proportion of the layers bred for high egg production. Laying now begins on the average earlier in the fall and continues later into the coming summer than was customary in former years.

The gain shown in production per hen since 1930 has amounted to 24.7 per cent for the fall and winter months and to 7.3 per cent for the spring and summer months. On the basis of production per flock, there has been a gain of 17.8 per cent for the fall and winter months, but a loss of 1 per cent for the spring and summer months. The aggregate gain for the 12 months, October to September, in the 10 years has amounted to approximately 13.1 per cent per layer and to 5.8 per cent per flock. The lower figures for flock changes are, of course, due to the smaller present numbers of layers per flock.

The total number of all young chickens of this year's hatching on hand in farm flocks on October 1 averaged 110.5, this being 5.6 greater than in 1938 and the highest since the beginning of the series in 1927. This record number of young chickens reflects the trend this year toward increase in flock size upward toward the levels of numbers a decade ago.

The average number of pullets not yet of laying age was 48.2 which exceeds last year's numbers by 2.9 pullets. It also exceeds the 5-year average, by 8.3 pullets and is the highest in the record. The total number of all pullets including those now in the laying flock exceeds last year's total by 4 pullets and is above the 5-year (1930-34) October 1 average by 19.2 pullets. Present numbers of pullets are greater than last year in every major geographic area except the North Atlantic where numbers are 4.9 less. The average number of older layers remaining in the flocks on October 1 was 34.6 compared with 33.1 last year.

The number of other chickens on hand, mostly cockerels and young chicks, was about 7 per cent greater than last year. The bulk of the surplus young chickens has already been marketed and this difference in remaining holdings represents only about 1 per cent of the probable total number of all chickens raised this year, or perhaps 2 to 3 per cent of the total marketings of young chickens.

—Comment from Poultry and Egg Production Report.

## Poultry Meat Prices

### Farm Prices of Chickens per Pound

(Figures given in cents)

| Year | Jan. 15 | Apr. 15 | May 15 | June 15 | July 15 | Aug. 15 | Sept. 15 | Oct. 15 | Nov. 15 |
|---|---|---|---|---|---|---|---|---|---|
| Average 1928-37 | 15.1 | 16.4 | 16.3 | 16.1 | 15.8 | 15.7 | 16.0 | 15.4 | 14.9 |
| 1937 | 13.4 | 15.2 | 14.8 | 14.8 | 15.3 | 16.8 | 17.4 | 17.6 | 16.9 |
| 1938 | 16.7 | 16.2 | 16.1 | 15.7 | 15.0 | 14.2 | 14.3 | 13.6 | 13.6 |
| 1939 | 14.0 | 14.4 | 13.9 | 13.4 | 13.7 | 13.0 | 13.6 | | |

Live poultry markets were mostly dull during the month, with a tendency toward slightly lower prices. This was partly due to the mild weather and its effect on buying, and partially because of the supply situation. Marketings of fowl in the Central West have been much heavier during recent weeks than a year ago, but receipts of young stock have been smaller. Receipts of fowl at packing plants in this area showed weekly reductions during the first half of October, although they still were heavier than a year earlier. The increase on fowl for the first week of the month was 37 per cent, and for the second week it was 17 per cent. In the case of young stock, weekly reductions are noted, but the relationships with a year ago are the opposite from fowl. Instead of increases, there were decreases, the reductions for the two above weeks being 8 per cent and 20 per cent, respectively.

—Comment from Monthly Egg and Poultry Markets Review.

## Egg Prices

### 1939 Egg Prices at New York City

| Kind | Oct. 6 | Oct. 13 | Oct. 20 | Oct. 27 | Oct. 27, '38 |
|---|---|---|---|---|---|
| Mixed Color Firsts | 19 | 19½-20 | 21-21½ | 22½ | 27½ |
| Nearby and Midwestern White Premium Marks | 32½-35 | 35-37½ | 36-38½ | 33½-36 | 41-43½ |
| Nearby and Midwestern White Specials | 32 | 34½ | 35½ | 33 | 36½-40½ |
| Pacific Coast Specials | 32½-36 | 35½-41 | 39-41 | 37½-38 | 44¾-45 |
| Nearby and Western Brown Exchange Specials | 29½ | 30½ | 30½-31 | 31 | 37 |

October egg markets, the Agricultural Marketing Service reports, were characterized by prices which advanced to the middle of the month, but which later receded almost to the levels prevailing on October 1. Market receipts have fallen off considerably, and a fairly active out-of-storage movement has taken place. These conditions, which normally lend support to markets, were offset to some extent in October by the uncertainty of production during the period ahead, the response of consumption to further upward price changes, and the final outcome of the season's storage situation.

Wholesale prices of eggs responded during October to the more or less unsettled feeling which was prevalent. In referring to October price trends, it is almost necessary to consider each class or grade separately, for price changes followed no uniform course.

Mixed Color Firsts at New York opened firm and higher than closing September prices, but followed an irregular trend during the month. Toward the middle of the month, the tone firmed considerably due to the lighter arrivals, but at the higher prices which resulted, buying interest dropped and prices receded. Present prices (October 28) are about 2½ cents higher than at the beginning of the month. Higher grades shared a somewhat similar trend, advancing sharply toward the middle of the month. Part of this gain was later lost on these grades, but current prices of these grades are about 3 cents above those prevailing early in October. As compared with the 1938 prices which prevailed at this season, highest quality eggs are 3 to 4 cents lower, and average quality eggs are about 6 cents lower. These relationships are similar in most other markets.

—Comment from Monthly Egg and Poultry Markets Review.

**Farm Prices of Eggs per Dozen**

(Figures given in cents)

| Year | Jan. 15 | Mar. 15 | May 15 | June 15 | July 15 | Aug. 15 | Sept. 15 | Oct. 15 | Nov. 15 |
|---|---|---|---|---|---|---|---|---|---|
| Average 1928-37 | 25.9 | 18.0 | 17.5 | 17.4 | 18.7 | 20.6 | 23.9 | 27.0 | 31.1 |
| 1937 | 23.1 | 19.9 | 17.9 | 17.6 | 19.4 | 20.4 | 22.9 | 25.2 | 28.0 |
| 1938 | 21.6 | 16.2 | 17.6 | 18.2 | 19.9 | 21.0 | 24.9 | 27.1 | 29.0 |
| 1939 | 18.6 | 16.0 | 15.2 | 14.9 | 16.5 | 17.5 | 20.6 | | |

# Receipts of Eggs and Poultry

**Receipts of Eggs at Eastern Egg Auctions**

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| October 7 | 26 | 26,108 | +0.63 | +39.50 |
| October 14 | 28 | 27,073 | −0.82 | +45.68 |
| October 21 | 28 | 26,262 | −2.25 | +35.47 |
| October 28 | 26 | 24,362 | −0.15 | +27.82 |

**Receipts of Eggs and Poultry at Central Western Primary Markets**

| Week Ending | Cases of Eggs | | | Pounds of Poultry (000 omitted) | | | Pounds of Young Stock (000 omitted) | | | Pounds of Fowl (000 omitted) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1939 | 1938 | % Chg. | 1939 | 1938 | % Chg. | 1939 | 1938 | % Chg. | 1939 | 1938 | % Chg. |
| Oct. 7 | 22,251 | 32,350 | −31.22 | 5,931 | 5,541 | +7.04 | 3,412 | 3,694 | − 7.64 | 2,429 | 1,770 | +37.24 |
| Oct. 14 | 19,794 | 28,778 | −31.22 | 5,386 | 5,838 | −7.73 | 3,147 | 3,910 | −19.51 | 2,161 | 1,847 | +16.96 |
| Oct. 21 | 17,547 | 24,854 | −29.40 | 5,807 | 6,126 | −5.19 | 3,497 | 4,060 | −13.86 | 2,232 | 1,979 | +12.77 |
| Oct. 28 | 17,785 | 20,456 | −13.06 | 6,530 | 6,423 | +1.66 | 3,983 | 4,482 | −11.13 | 2,459 | 2,187 | +12.45 |

Receipts at Central Western packing plants since the middle of September have shown heavy reductions from a year ago, the decreases the first two weeks of October exceeding 30 per cent.

**Receipts of Eggs at Pacific Coast Primary Markets**

| Week Ending | No. of Plants | Cases of Eggs 1939 | Cases of Eggs 1938 | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| October 7 | 61 | 53,463 | 53,887 | −4.48 | −0.79 |
| October 14 | 62 | 52,883 | 52,058 | −1.27 | +1.58 |
| October 21 | 61 | 53,614 | 50,820 | +1.60 | +5.50 |
| October 28 | 60 | 54,331 | 50,964 | +1.73 | +6.61 |

Packing plant receipts on the Pacific Coast are also showing continued seasonal reductions, but the percentage changes each week are much less than in the Central West. Declining egg marketings ordinarily lend support to the market. This influence has not been more apparent probably because of some uncertainty as to the immediate production outlook, and in part to other counteracting influences.

**Receipts of Eggs (Cases) at 4 Markets***

| Geographic sections | September 1939 | September 1938 | % change | Jan. to Sept., Inc. 1939 | Jan. to Sept., Inc. 1938 | % change |
|---|---|---|---|---|---|---|
| New England | 31,856 | 21,557 | + 47.8 | 284,442 | 224,308 | + 26.8 |
| Middle Atlantic | 117,427 | 93,987 | + 24.9 | 1,597,140 | 1,328,234 | + 20.2 |
| South Atlantic | 11,946 | 10,363 | + 15.3 | 235,778 | 221,527 | + 6.4 |
| East North Central | 100,828 | 111,068 | − 9.2 | 2,372,440 | 2,276,234 | + 4.2 |
| West North Central | 393,180 | 330,568 | + 18.9 | 6,832,557 | 5,874,812 | + 16.3 |
| South Central | 1,053 | 1,079 | − 2.4 | 55,157 | 95,655 | − 42.3 |
| Mountain | 21,077 | 23,035 | − 8.5 | 226,567 | 369,690 | − 38.7 |
| Pacific | 46,563 | 59,368 | − 21.6 | 272,685 | 523,590 | − 47.9 |
| Miscellaneous | 276 | 240 | + 15.0 | 4,195 | 4,358 | − 3.7 |
| TOTAL | 724,206 | 651,265 | + 11.2 | 11,880,961 | 10,918,408 | + 8.8 |

**Receipts of Dressed Poultry (pounds) at 4 Markets***

| | | | | | | |
|---|---|---|---|---|---|---|
| New England | 897,151 | 849,810 | + 5.6 | 10,189,536 | 9,103,982 | + 11.9 |
| Middle Atlantic | 4,211,352 | 3,384,533 | + 24.4 | 33,233,931 | 29,106,868 | + 14.2 |
| South Atlantic | 1,534,836 | 552,765 | +177.7 | 13,501,436 | 5,281,285 | +155.6 |
| East North Central | 3,058,962 | 3,080,481 | − 0.7 | 27,778,064 | 19,167,161 | + 44.9 |
| West North Central | 18,152,382 | 17,351,664 | + 4.6 | 95,766,270 | 79,434,449 | + 20.6 |
| South Central | 769,370 | 688,501 | + 11.7 | 14,195,482 | 16,110,697 | − 11.9 |
| Mountain | 177,859 | 258,847 | − 31.3 | 2,947,332 | 2,026,607 | + 45.4 |
| Pacific | 644,834 | 219,258 | +194.1 | 6,006,958 | 7,076,426 | − 15.1 |
| Miscellaneous | – | – | – | 34,117 | – | – |
| TOTAL | 29,446,746 | 26,385,859 | + 11.6 | 203,653,126 | 167,307,475 | + 21.7 |

* New York, Chicago, Philadelphia, and Boston.

The drop in market receipts has been sharp, reversing the trend in relation to last year noted during the earlier months of the season. Combined receipts at the four markets, New York, Chicago, Philadelphia, and Boston, during the first 3 weeks of October were 13 per cent lighter than the corresponding period of October 1938. At Chicago, the decrease was about 20 per cent. Since arrivals at these four markets in September were 11 per cent greater than during the month last year, and increases over 1938 had been noted every month up to October, the recent reversal of trend is all the more noticeable. While the receipts at these 4 markets include eggs from all sections of the country, most of them come from the Midwest.

# Egg-Feed Ratios

### New York Egg-Feed Ratio

| Week Ending | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration | | | Avg. Egg Price per Doz. (Dollars) | | | Avg. Feed Cost per 100 lbs. (Dollars) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1939 | 1938 | 1937 | 1939 | 1938 | 1937 | 1939 | 1938 | 1937 |
| October 5 | 7.1 | 4.4 | 6.2 | .260 | .347 | .329 | 1.84 | 1.54 | 2.11 |
| October 12 | 6.5 | 4.2 | 6.4 | .281 | .361 | .318 | 1.82 | 1.52 | 2.02 |
| October 19 | 5.8 | 4.1 | 5.8 | .317 | .366 | .335 | 1.83 | 1.51 | 1.93 |
| October 26 | 6.1 | 4.4 | 5.3 | .299 | .350 | .355 | 1.82 | 1.55 | 1.90 |

### Chicago Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration | | | Price of Fresh Graded Firsts (Dollars) | | Cost of Ration per 100 lbs. (Dollars) | |
|---|---|---|---|---|---|---|---|
| | 1939 | 1938 | 10-Yr. Av. 1929-38 | 1939 | 1938 | 1939 | 1938 |
| October 7 | 6.10 | 3.91 | 5.00 | .182 | .245 | 1.116 | .957 |
| October 14 | 6.16 | 3.71 | 4.87 | .190 | .253 | 1.171 | .939 |
| October 21 | 5.29 | 3.71 | 4.74 | .207 | .255 | 1.096 | .935 |
| October 28 | 5.13 | 3.79 | 4.60 | .208 | .246 | 1.068 | .935 |

### Central California Egg Feed Ratio

| | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration | | | | | |
|---|---|---|---|---|---|---|
| Period | 1939 | 1938 | 1937 | 1936 | 1935 | 1934 |
| September | 5.79 | 4.68 | 6.16 | 6.98 | 5.05 | 6.92 |
| January-September | 7.31 | 7.23 | 9.17 | 7.39 | 6.88 | 8.57 |
| Year | — | 6.50 | 8.27 | 7.07 | 6.41 | 7.92 |

—Data compiled by Edwin C. Voorhies, University of California

# Poultry Canning Operations

### Poultry Canning Operations During September, 1939

| Commodity | Quantities reported to date for Sept. 1939 | Quantities reported for Aug. 1939 | Same Firm Comparison | | |
|---|---|---|---|---|---|
| | | | Sept. 1939 | Sept. 1938 | % change in 1939 |
| | Pounds | Pounds | Pounds | | Per cent |
| Dressed poultry canned or used in canning | 2,980,546 | 3,581,019 | 2,980,546 | 1,640,929 | +82 |
| Number of firms reporting | 18 | 19 | 18 | | |

# Eggs in Storage

### Storage Holdings of Eggs

| Kind | Oct. 1 5-Year Avg. 1934-38 | Oct. 1 1938 | Sept. 1 1939 | Oct. 1 1939 | % Change Oct. '38-Oct. '39 |
|---|---|---|---|---|---|
| | (Thousands) | | | | |
| Shell Eggs (cases) | 6,159 | 4,765 | 6,598 | 5,429 | +13.9 |
| Frozen Eggs (lbs.) | 110,745 | 110,244 | 135,928 | 121,469 | +10.1 |
| Frozen Case Equivalent (cases)* | 3,164 | 3,150 | 3,884 | 3,471 | +10.1 |
| Total (cases) | 9,323 | 7,915 | 10,482 | 8,900 | +12.4 |

* Frozen eggs are converted on the basis of 35 lbs. to the case.

# Poultry in Storage

### Storage Holdings of Frozen Poultry

| Kind | Oct. 1 5-Year Avg. 1934-38 | Oct. 1 1938 | Sept. 1 1939 | Oct. 1 1939 | % Change Oct. '38-Oct. '39 |
|---|---|---|---|---|---|
| | (Thousand Pounds) | | | | |
| Broilers | 12,564 | 9,798 | 8,835 | 9,032 | – 7.8 |
| Fryers | 4,550 | 4,152 | 2,520 | 3,748 | – 9.7 |
| Roasters | 6,283 | 7,497 | 4,883 | 6,714 | – 10.4 |
| Fowls | 10,827 | 9,630 | 12,276 | 11,083 | + 15.0 |
| Turkeys | 5,258 | 3,790 | 9,994 | 7,992 | +110.8 |
| Ducks | 7,047 | 11,496 | 10,339 | 10,002 | – 12.9 |
| Miscellaneous | 13,219 | 13,579 | 14,023 | 14,580 | + 7.3 |
| Total | 59,748 | 59,942 | 62,870 | 63,151 | – 5.3 |

# Egg Breaking Operations

### Egg Breaking Operations During September, 1939

| Commodity | | Quantities reported to date for Sept. 1939 | Same firm comparison | | |
|---|---|---|---|---|---|
| | | | Sept. 1939 | Sept. 1938 | % change in 1939 |
| | | Pounds | Pounds | | Per cent |
| Whole eggs (nothing added) | | 799,989. | 736,992 | 351,866 | + 109 |
| Mixed eggs (plain) | | 321,660 | 321,660 | 30,390 | + 858 |
| Mixed eggs (emulsions, also with sugar, salt, etc.) | | 39,771 | 39,771 | 31,756 | + 25 |
| Egg whites (all descriptions) | | 648,441 | 394,006 | 109,594 | + 260 |
| Egg yolks packed | Without salt, sugar, etc. | 408,293 | 193,235 | 74,492 | + 159 |
| | With sugar | 74,308 | 73,903 | 20,105 | + 268 |
| | With salt | 111,000 | 100,000 | 210 | +4,662 |
| | All yolk emulsions, including glycerine | 0 | 0 | 0 | |
| Total—pounds | | 2,403,462 | 1,859,567 | 618,413 | + 201 |
| Total—case egg equivalent | | 68,670 | 53,130 | 17,669 | |
| Number of firms reporting | | 45 | 44 | 44 | |

# Egg and Poultry Exports and Imports

### Exports of Eggs and Poultry

| Commodity | September 1939 | September 1938 | Jan. to Sept., Inc. 1939 | Jan. to Sept., Inc. 1938 |
|---|---|---|---|---|
| Eggs in shell (doz.) | 240,295 | 136,334 | 1,887,380 | 1,603,938 |
| Eggs and yolks, frozen, dried, or canned (lbs.) | Not available | Not available | Not available | Not available |
| Live poultry (lbs. | 8,362 | 4,572 | 144,786 | 57,339 |
| Dressed poultry (lbs.) | 201,081 | 203,128 | 1,945,261 | 1,259,962 |

### Imports of Eggs and Poultry

| Commodity | September 1939 | September 1938 | Jan. to Sept., Inc. 1939 | Jan. to Sept., Inc. 1938 |
|---|---|---|---|---|
| Eggs in shell (doz.) | 19,158 | 20,531 | 224,042 | 162,411 |
| Whole eggs, dried (lbs.) | 5,000 | 5,023 | 40,500 | 137,115 |
| Whole eggs, frozen (lbs.) | 0 | 0 | 420 | 938 |
| Yolks, dried (lbs.) | 141,450 | 7,600 | 447,175 | 226,655 |
| Yolks, frozen (lbs.) | 0 | 45,120 | 25,330 | 430,220 |
| Egg albumen, dried (lbs.) | 50,000 | 85,857 | 387,283 | 467,831 |
| Egg albumen, frozen (lbs.) | 0 | 0 | 0 | 30 |
| Live poultry (lbs.) | 67,687 | 73,911 | 559,187 | 1,000,338 |
| Dressed poultry (lbs.) | 16,099 | 57,463 | 141,577 | 469,164 |
| Poultry, prepared (lbs.) | 29,073 | 34,082 | 629,269 | 404,192 |

# RESULTS OF LAYING TESTS

Kauder's Pedigreed Leghorns topped all standard laying tests for 1938-39, winning highest honors among all breeds for both pen and individual hen. The Kauder pen at Storrs produced a total of 3791 eggs, good for 4098.7 points. These 13 winners thus averaged 315.28 points and 291.6 eggs per bird.

The high hen, all breeds, for the year, a Kauder Leghorn at Storrs, established a new U. S. laying test record by shelling out 340 eggs good for 372.3 points. The former highest record of 370.6 points for an individual bird in U. S. tests was made in 1936-37 by a White Leghorn hen at Texas.

A. E. Guinn's White Leghorn at Georgia was second highest with 335 eggs and 366.25 points for the year. Ford's Rhode Island Red at Maine placed third highest among the 14,820 birds that started the year.

Thomas Mettler's Rhode Island Reds, high pen in their breed and second highest among all standard test pens for the year, set a new high production record in New Jersey egg laying marathons, when they laid 3806 eggs and earned 3895 points at Hunterdon, N. J.

Third high among the 1140 different pens was Ford's Riverbank Farm's Reds at Maine. Dryden's Leghorns at Michigan earned fourth place, and Larrabee's New Hampshires at Storrs, topping their breed by some 300 points, ended the year in fifth high position.

Hubbard Farms' entry at Storrs was second high in the New Hampshire breed. Among the Barred Rocks, Dryden Poultry Breeding Farm's pen at Pennsylvania earned the blue ribbon for top performance, with David T. Cohen's Barred Rocks at Central New York next in line.

Homestead Farm's White Rocks at Storrs gained the highest place in their breed after a keen struggle during the last month. Red Barn Poultry Farm claims second high pen in this breed.

Stroehlein Brothers' White Leghorns have the distinction of being the first winner at the Record of Performance Progeny Test at Paterson, N. J. E. B. Parmenter's Rhode Island Reds were second high for the year.

Sebold Poultry Farm's White Leghorns placed first among all pens in the two-year class of the Vineland. N. J., Hen Test. Booth Farms and Hatchery's White Leghorns gained highest honors in the two-year division at the Pennsylvania Hen Test.

Irving J. Kauder won the Item Trophy for 1939. This trophy is given to the breeder with the highest total of points for five pens, all 13 birds competing in each pen. Dryden Poultry Breeding Farm of California placed second and J. J. Warren of Massachusetts ranked third.

Kauder was also awarded the Poultry Tribune Trophy for the year. This trophy is given to the breeder whose birds make the highest point average, counting all birds of one breed which the breeder has in all standard tests. Only breeders who enter five or more pens of one breed are eligible. A. E. Guinn ranked second in this race, with Thomas Mettler third.

## Twenty Highest Pens, All Breeds, for the Year

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 3791 | 4098.70 | Storrs |
| Thomas Mettler | Rhode Island Red | 3806 | 3895.40 | Hunterdon, N. J. |
| Ford's Riverbank Farm | Rhode Island Red | 3627 | 3687.95 | Maine |
| Dryden Poultry Breeding Farm | White Leghorn | 3478 | 3650.65 | Michigan |
| E. N. Larrabee | New Hampshire | 3499 | 3639.35 | Storrs |
| J. J. Warren | Rhode Island Red | 3399 | 3605.65 | Storrs |
| Kauder's Pedigreed Leghorns | White Leghorn | 3389 | 3600.40 | Georgia |
| Sand Springs Home Farm | White Leghorn | 3406 | 3599.25 | Texas |
| W. C. Mullins | Rhode Island Red | 3365 | 3568.95 | Texas |
| Guy A. Leader | White Leghorn | 3421 | 3542.75 | Pennsylvania |
| Kauder's Pedigreed Leghorns | White Leghorn | 3350 | 3528.00 | Georgia |
| John A. Clear | White Leghorn | 3285 | 3498.15 | Hunterdon, N. J. |
| Bryan J. Snell | White Leghorn | 3211 | 3475.65 | Pennsylvania |
| Booth Farms and Hatchery | White Leghorn | 3209 | 3454.60 | Oklahoma |
| Donald L. Crooks | Rhode Island Red | 3253 | 3446.50 | Storrs |
| Woodlawn Farm | White Leghorn | 3182 | 3401.45 | Texas |
| Content Farms | White Leghorn | 3274 | 3398.45 | Central New York |
| Sand Springs Home Farm | White Leghorn | 3372 | 3398.10 | Georgia |
| Nelson's Leghorn Breeding Farm | White Leg. | 3188 | 3396.05 | Texas |
| Dryden Poultry Breeding Farm | Barred Rock | 3375 | 3387.95 | Pennsylvania |

## High Pen in Each Breed for the Year—(51 Weeks)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 3791 | 4098.70 | Storrs |
| Thomas Mettler | Rhode Island Red | 3806 | 3895.40 | Hunterdon, N. J. |
| E. N. Larrabee | New Hampshire | 3499 | 3639.35 | Storrs |
| Dryden Poultry Breeding Farm | Barred Rock | 3375 | 3387.95 | Pennsylvania |
| Homestead Farm | White Rock | 2900 | 3004.35 | Storrs |
| Lonnie Van Sant | Black Australorp | 2813 | 2972.40 | Arizona |
| Colonial Poultry Farm | White Wyandotte | 2617 | 2746.05 | Texas |
| Ben G. Munroe | Ancona | 2538 | 2594.75 | Texas |
| Highland Poultry Farm | White Giant | 2149 | 2337.20 | Rhode Island |
| Harry L. Phillips | Columbian Rock | 2206 | 2321.60 | Missouri |
| Colonial Poultry Farm | White Minorca | 2143 | 2262.80 | Georgia |
| S. E. Raymond | Lamona | 2056 | 2190.50 | Storrs |
| Donald C. Chandler | Silver Laced Wyandotte | 2121 | 2126.25 | Maine |
| Wm. W. Lehman | Buff Leghorn | 2036 | 2058.20 | Pennsylvania |
| Lindstrom Poultry Farm | Buff Minorca | 1960 | 2001.30 | Missouri |
| Hall Bros. Hatchery | Cross | 1879 | 1961.51 | New York State |
| Iowa Master Breeders | Buff Orpington | 1768 | 1839.60 | Missouri |
| Cedarlaid Poultry Farm | Brown Leghorn | 2043 | 1805.55 | Florida |
| Blue Ribbon Farms | Rhode Island White | 1683 | 1708.90 | Texas |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 1428 | 1507.85 | Maine |

## High Hen in Each Breed for the Year—(51 Weeks)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 340 | 372.30 | Storrs |
| Ford's Riverbank Farm | Rhode Island Red | 336 | 357.75 | Maine |
| Weber Duck Farm | Barred Rock | 320 | 336.35 | Georgia |
| E. N. Larrabee | New Hampshire | 317 | 334.70 | Storrs |
| Homestead Farm | White Rock | 302 | 328.95 | Storrs |
| E. S. McSweeny | Black Australorp | 302 | 322.20 | Arizona |
| Lindstrom Poultry Farm | White Wyandotte | 296 | 305.35 | Pennsylvania |
| Raymond Murphy | White Giant | 273 | 291.05 | Missouri |
| Eriksen's Ancona Yards | Ancona | 280 | 276.10 | Storrs |
| Colonial Poultry Farm | White Minorca | 248 | 267.00 | Georgia |
| S. E. Raymond | Lamona | 242 | 264.65 | Storrs |
| Blue Ribbon Farms | Rhode Island White | 225 | 247.75 | Texas |
| Donald C. Chandler | Silver Laced Wyandotte | 230 | 247.30 | Maine |
| Laclede Hatchery | Buff Orpington | 251 | 246.25 | Florida |
| Harry L. Phillips | Columbian Rock | 224 | 243.70 | Missouri |
| Lindstrom Poultry Farm | Buff Minorca | 247 | 242.10 | Rhode Island |
| Hall Bros. Hatchery | Cross | 220 | 235.90 | New York State |
| Cedarlaid Poultry Farm | Brown Leghorn | 240 | 228.25 | Florida |
| Eagle Nest Hatch. & Breed. Farm | Buff Rock | 206 | 222.40 | Maine |
| Wm. W. Lehman | Buff Leghorn | 203 | 217.40 | Pennsylvania |

## High Pen in Each Standard Test for the Year

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 3791 | 4098.70 | Storrs |
| Thomas Mettler | Rhode Island Red | 3806 | 3895.40 | Hunterdon, N. J. |
| Ford's Riverbank Farm | Rhode Island Red | 3627 | 3687.95 | Maine |
| Dryden Poultry Breeding Farm | White Leghorn | 3478 | 3650.65 | Michigan |
| Kauder's Pedigreed Leghorns | White Leghorn | 3389 | 3600.40 | Georgia |
| Sand Springs Home Farm | White Leghorn | 3406 | 3599.25 | Texas |
| Guy A. Leader | White Leghorn | 3421 | 3542.75 | Pennsylvania |
| Booth Farms and Hatchery | White Leghorn | 3209 | 3454.60 | Oklahoma |
| Content Farms | White Leghorn | 3274 | 3398.48 | Central New York |
| E. B. Parmenter | Rhode Island Red | 3235 | 3357.10 | Florida |
| Kauder's Pedigreed Leghorns | White Leghorn | 3138 | 3315.30 | Western New York |
| Norman W. Amidon | Rhode Island Red | 3066 | 3311.55 | Rhode Island |
| George A. Pearce | Rhode Island Red | 3233 | 3271.30 | Passaic, N. J. |
| R. O. Wagemaker | Rhode Island Red | 3017 | 3260.75 | Missouri |
| J. J. Warren | Rhode Island Red | 3035 | 3165.30 | New York State |
| J. A. Hanson | White Leghorn | 3040 | 3120.10 | Arizona |

## High Hen in Each Standard Test for the Year

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 340 | 372.30 | Storrs |
| A. E. Guinn | White Leghorn | 335 | 366.30 | Georgia |
| Ford's Riverbank Farm | Rhode Island Red | 336 | 357.75 | Maine |
| Weber Duck Farm | Rhode Island Red | 321 | 350.85 | Michigan |
| Gulfkist Poultry Farm | White Leghorn | 319 | 348.00 | Florida |
| I. Commer | White Leghorn | 319 | 341.25 | Texas |
| Henrich Poultry Farm | White Leghorn | 314 | 340.15 | Missouri |
| C. T. Darby | White Leghorn | 322 | 339.35 | Passaic, N. J. |
| S. C. Houck | New Hampshire | 310 | 334.30 | Pennsylvania |
| Thomas Mettler | Rhode Island Red | 310 | 334.20 | Hunterdon, N. J. |
| R. E. and F. H. Kendrick | Rhode Island Red | 310 | 334.20 | Rhode Island |
| Schwegler's Hatchery | White Leghorn | 320 | 333.20 | Central New York |
| Stroehlein Bros. | White Leghorn | 301 | 329.10 | Western New York |
| E. S. McSweeny | Black Australorp | 302 | 322.20 | Arizona |
| Booth Farms and Hatchery | White Leghorn | 292 | 316.85 | Oklahoma |
| Weber Duck Farm | Rhode Island Red | 291 | 314.00 | New York State |

## High Pen in Each Standard Test for September

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 276 | 301.90 | Storrs |
| Dryden Poultry Breeding Farm | White Leghorn | 207 | 222.75 | Western New York |
| Sand Springs Home Farms | White Leghorn | 203 | 212.00 | Georgia |
| Dryden Poultry Breeding Farm | White Leghorn | 197 | 211.65 | Michigan |
| Dryden Poultry Breeding Farm | White Leghorn | 189 | 202.80 | Central New York |
| Thomas Mettler | Rhode Island Red | 191 | 200.20 | Pennsylvania |
| Sebold Poultry Farm | White Leghorn | 193 | 200.15 | Passaic, N. J. |
| Thomas Mettler | Rhode Island Red | 186 | 197.00 | Hunterdon, N. J. |
| Louis D. Schaible | Rhode Island Red | 200 | 196.50 | New York State |
| Gardner Hayden | Rhode Island Red | 183 | 193.75 | Maine |
| Lone Oak Leghorn Farm | White Leghorn | 180 | 185.20 | Florida |
| W. C. Mullins | Rhode Island Red | 175 | 181.25 | Texas |
| Norman W. Amidon | Rhode Island Red | 165 | 179.50 | Rhode Island |
| Roscoe Hill Hatchery | White Leghorn | 168 | 177.95 | Missouri |
| David T. Cohen | Barred Rock | 178 | 175.85 | Arizona |
| Booth Farms and Hatchery | White Leghorn | 143 | 154.20 | Oklahoma |

## High Hen in Each Standard Test for September

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 26 | 28.60 | Storrs |
| Ford's Riverbank Farm | Rhode Island Red | 22 | 24.20 | Michigan |
| J. A. Hanson | White Leghorn | 22 | 24.20 | Georgia |
| Cobb's "Rainbow" Reds | Rhode Island Red | 22 | 24.15 | Western New York |
| Ford's Riverbank Farm | Rhode Island Red | 22 | 23.90 | Maine |
| Thomas Mettler | Rhode Island Red | 21 | 23.10 | Passaic, N. J. |
| David T. Cohen | Barred Rock | 21 | 23.00 | Central New York |
| J. A. Hanson | White Leghorn | 21 | 23.00 | Pennsylvania |
| Lindstrom Poultry Farm | Barred Rock | 21 | 22.70 | Missouri |
| Foreman Poultry Farm | White Leghorn | 21 | 22.00 | Rhode Island |
| Dembro Poultry Farm | White Leghorn | 20 | 22.00 | Hunterdon, N. J. |
| Weber Duck Farm | Rhode Island Red | 20 | 21.95 | New York State |
| Louis H. Ritzhaupt | Rhode Island Red | 20 | 21.95 | Oklahoma |
| Erath Egg Farm | White Leghorn | 21 | 21.80 | Texas |
| Vans R. Otey | Rhode Island Red | 20 | 21.30 | Florida |
| Walter Cochran | White Leghorn | 19 | 19.75 | Arizona |

## 20 Highest White Leghorn Pens in Country for the Year

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Kauder's Pedigreed Leghorns | 3791 | 4098.70 | Storrs |
| Dryden Poultry Breeding Farm | 3478 | 3650.65 | Michigan |
| Kauder's Pedigreed Leghorns | 3389 | 3600.40 | Georgia |
| Sand Springs Home Farm | 3406 | 3599.25 | Texas |
| Guy A. Leader | 3421 | 3542.75 | Pennsylvania |
| Kauder's Pedigreed Leghorns | 3350 | 3528.00 | Georgia |
| John A. Clear | 3285 | 3498.15 | Hunterdon, N. J. |
| Bryan J. Snell | 3211 | 3475.65 | Pennsylvania |
| Booth Farms and Hatchery | 3209 | 3454.60 | Oklahoma |
| Woodlawn Farm | 3182 | 3401.45 | Texas |
| Content Farms | 3274 | 3398.45 | Central New York |
| Sand Springs Home Farm | 3372 | 3398.10 | Georgia |
| Nelson's Leghorn Breeding Farm | 3188 | 3396.05 | Texas |
| W. H. Kaltreider | 3344 | 3371.00 | Pennsylvania |
| Guy A. Leader | 3208 | 3364.20 | Storrs |
| Woodlawn Farm | 3226 | 3362.80 | Texas |
| Hollywood Poultry Farm | 3394 | 3357.70 | Georgia |
| Vandermast Farm | 3231 | 3353.40 | Pennsylvania |
| Tarleton Poultry Farm | 3147 | 3332.00 | Texas |
| Booth Farms and Hatchery | 3126 | 3316.15 | Florida |

## 20 Highest Rhode Island Red Pens in Country for the Year

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Thomas Mettler | 3806 | 3895.40 | Hunterdon, N. J. |
| Ford's Riverbank Farm | 3627 | 3687.95 | Maine |
| J. J. Warren | 3399 | 3605.65 | Storrs |
| W. C. Mullins | 3365 | 3568.95 | Texas |
| Donald L. Crooks | 3253 | 3446.50 | Storrs |
| E. B. Parmenter | 3235 | 3357.10 | Florida |
| Thomas Mettler | 3209 | 3347.15 | Pennsylvania |
| R. W. Anderson | 3087 | 3326.15 | Storrs |
| Donald I. Goodenough | 3113 | 3322.00 | Storrs |
| Norman W. Amidon | 3066 | 3311.55 | Rhode Island |
| Vans R. Otey | 3172 | 3302.60 | Florida |
| J. J. Warren | 3076 | 3301.40 | Rhode Island |
| A. S. Pendleton | 3157 | 3291.05 | Storrs |
| Wene Chick Farm | 3156 | 3288.60 | Storrs |
| Norman W. Amidon | 3093 | 3288.50 | Storrs |
| George A. Pearce | 3233 | 3271.30 | Passaic, N. J. |
| R. O. Wagemaker | 3017 | 3260.75 | Missouri |
| J. J. Warren | 3015 | 3259.00 | Storrs |
| George A. Pearce | 3158 | 3219.05 | Hunterdon, N. J. |
| R. E. and F. H. Kendrick | 3006 | 3207.00 | Rhode Island |

## 20 Highest Barred Plymouth Rock Pens in Country for the Year

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Dryden Poultry Breeding Farm | 3375 | 3387.95 | Pennsylvania |
| David T. Cohen | 3181 | 3305.55 | Central New York |
| Dryden Poultry Breeding Farm | 3138 | 3229.65 | Storrs |
| Dryden Poultry Breeding Farm | 3104 | 3182.40 | Central New York |
| Dryden Poultry Breeding Farm | 2937 | 3092.35 | Missouri |
| Riley Poultry Farm | 3099 | 3054.05 | Michigan |
| R. C. E. Wallace | 2917 | 3018.70 | Central New York |
| Charles Lathrop | 2836 | 2968.25 | Passaic, N. J. |
| Fuzzydele Farms | 2836 | 2965.55 | Storrs |
| Egyptian Hatchery | 2900 | 2961.40 | Missouri |
| David T. Cohen | 2987 | 2934.10 | Arizona |
| R. C. Cobb | 2715 | 2903.15 | Storrs |
| Riley Poultry Farm | 2799 | 2880.40 | Georgia |
| Charles Lathrop | 2843 | 2865.80 | Hunterdon, N. J. |
| R. R. Parks | 2756 | 2809.35 | Pennsylvania |
| Broad Acres Farm | 2625 | 2804.45 | Storrs |
| Weber Duck Farm | 2606 | 2791.30 | Rhode Island |
| David T. Cohen | 2736 | 2786.45 | Storrs |
| Eagle Nest Hatching and Breeding Farm | 2718 | 2768.75 | Maine |
| R. R. Parks | 2743 | 2767.05 | Pennsylvania |

## 20 Highest New Hampshire Pens in Country for the Year

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Edward N. Larrabee | 3499 | 3639.35 | Storrs |
| Hubbard Farms | 3201 | 3338.50 | Storrs |
| A. J. Williams | 3093 | 3155.65 | Florida |
| Fuzzydele Farms | 2834 | 3063.25 | Pennsylvania |
| Del Rio Farm | 2868 | 3047.65 | Arizona |
| W. H. Boulware | 2981 | 3040.50 | Georgia |
| W. H. Boulware | 2913 | 3024.80 | Florida |
| H. S. and M. E. Twichell | 2925 | 3012.75 | Western New York |
| Fuzzydele Farms | 2874 | 2999.40 | Western New York |
| Edward N. Larrabee | 2848 | 2996.75 | Western New York |
| Goodwin's Poultry Farm | 2878 | 2995.25 | Storrs |
| A. J. Williams | 2861 | 2977.25 | Florida |
| Thomas J. Harrold | 2933 | 2965.50 | Georgia |
| Steelman Poultry Farm | 2801 | 2955.25 | Storrs |
| Eben Wood | 2830 | 2948.30 | Pennsylvania |
| Eben Wood | 2741 | 2876.20 | Passaic, N. J. |
| Stroehlein Brothers | 2808 | 2869.55 | Passaic, N. J. |
| Colonial Poultry Farm | 2780 | 2845.55 | Arizona |
| S. C. Houck | 2714 | 2830.85 | Pennsylvania |
| Quimby School | 2892 | 2817.55 | Maine |

## 20 Highest White Plymouth Rock Pens in Country for the Year

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Homestead Farm | 2900 | 3004.35 | Storrs |
| Red Barn Poultry Farm | 2832 | 2992.45 | Storrs |
| Oscar W. Holtzapple | 2866 | 2973.10 | Georgia |
| Homestead Farm | 2926 | 2962.90 | Pennsylvania |
| Quimby School | 2796 | 2943.10 | Rhode Island |
| Riley Poultry Farm | 2937 | 2893.00 | Oklahoma |
| Oscar W. Holtzapple | 2744 | 2808.65 | Pennsylvania |
| Kalerok Farm | 2631 | 2787.75 | Rhode Island |
| Riley Poultry Farm | 2729 | 2700.55 | Michigan |
| Kalerok Farm | 2588 | 2688.40 | Pennsylvania |
| Miami Chick Hatchery | 2560 | 2660.50 | New York State |
| Tender Broiler Hatchery | 2590 | 2625.60 | Oklahoma |
| Albert C. Lawton | 2489 | 2625.10 | Rhode Island |
| Faith Farm | 2575 | 2591.30 | New York State |
| Earl C. Dunham | 2478 | 2574.20 | Georgia |
| E. A. Hirt | 2374 | 2517.55 | Storrs |
| Kalerok Farm | 2351 | 2494.90 | Storrs |
| Riley Poultry Farm | 2401 | 2492.70 | Central New York |
| Earl C. Dunham | 2337 | 2455.15 | Storrs |
| E. A. Hirt | 2255 | 2418.40 | Rhode Island |

## Average Production in Each Test for the Year

| Test | No. Birds | Eggs Per Bird | Points Per Bird | Egg Wt. Per Doz. in Ounces | Per Cent Mortality for Sept. | Per Cent Mortality for Year |
|---|---|---|---|---|---|---|
| Texas | 910 | 197.62 | 207.43 | 25.17 | 1.86 | 28.02 |
| Western New York | 884 | 199.30 | 205.01 | 24.67 | 1.69 | 15.15 |
| Arizona | 260 | 200.08 | 204.15 | 24.48 | .76 | 16.53 |
| Pennsylvania | 1,131 | 196.85 | 203.71 | 24.81 | 1.85 | 17.85 |
| Storrs* | 1,300 | 194.56 | 202.59 | 24.98 | .76 | 17.92 |
| Passaic, New Jersey | 1,001 | 193.89 | 197.77 | 24.48 | 2.79 | 23.46 |
| Hunterdon, New Jersey | 650 | 191.93 | 197.25 | 24.64 | 1.23 | 25.69 |
| Central New York | 910 | 187.35 | 193.25 | 24.74 | 1.64 | 18.02 |
| Georgia | 1,300 | 188.91 | 191.27 | 24.28 | 1.46 | 24.30 |
| Florida | 1,248 | 183.43 | 184.60 | 24.14 | 1.44 | 21.63 |
| Michigan | 897 | 177.42 | 182.82 | 24.72 | 1.67 | 27.87 |
| Oklahoma | 650 | 177.11 | 181.75 | 24.62 | 4.61 | 28.46 |
| Rhode Island | 650 | 169.84 | 178.85 | 25.27 | 2.30 | 26.15 |
| Missouri | 780 | 162.62 | 171.77 | 25.34 | 1.41 | 26.79 |
| New York State* | 1,222 | 166.77 | 167.27 | 24.06 | 1.06 | 22.66 |
| Maine | 1,027 | 155.00 | 157.70 | 24.30 | 2.60 | 32.20 |
| All Tests | 14,820 | 183.66 | 188.71 | 24.64 | 1.78 | 23.21 |

* All pen records at New York State Test and most of those at Storrs cover a 50-week period; records at all other tests cover 51 weeks.

## 5 High Pens, R. O. P. Progeny Test, Paterson, N. J., for the Year

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Stroehlein Brothers | White Leghorn | 3678 | 3841 |
| E. B. Parmenter | Rhode Island Red | 3482 | 3642 |
| Creighton Brothers | White Leghorn | 3517 | 3607 |
| Francis Townsend | White Leghorn | 3629 | 3527 |
| Eli H. Bodine | White Leghorn | 3346 | 3394 |

## High Pen, Each Breed, R. O. P. Progeny Test, for the Year

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Stroehlein Bros. | White Leghorn | 3678 | 3841 |
| E. B. Parmenter | Rhode Island Red | 3482 | 3642 |
| Mrs. C. G. Schmidt | White Wyandotte | 2764 | 2893 |
| H. Bernard Helms | New Hampshire | 2419 | 2598 |

## 5 High Hens, R. O. P. Progeny Test, Paterson, N. J., for the Year

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Wegatepa Farms | Rhode Island Red | 301 | 314.25 |
| Oak Knoll Poultry Farm | White Leghorn | 311 | 313.70 |
| St. Paul Hatchery | White Leghorn | 302 | 311.60 |
| E. B. Parmenter | Rhode Island Red | 284 | 308.90 |
| Wegatepa Farms | Rhode Island Red | 284 | 308.80 |

## 5 High Families, R. O. P. Progeny Test, for the Year

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| E. B. Parmenter | Rhode Island Red | 1299 | 1378 |
| Creighton Brothers | White Leghorn | 1304 | 1357 |
| Stroehlein Brothers | White Leghorn | 1233 | 1318 |
| Oak Knoll Poultry Farm | White Leghorn | 1291 | 1307 |
| Wegatepa Farms | Rhode Island Red | 1248 | 1293 |

## High Pen, Each Breed, in Pennsylvania Hen Test for the Year

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Booth Farms and Hatchery | White Leghorn | 2588 | 2796.10 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 1796 | 1951.00 | Two-Year |
| Fuzzydele Farms | New Hampshire | 1437 | 1572.65 | Two-Year |
| J. J. Warren | Rhode Island Red | 1306 | 1416.30 | Two-Year |
| Fuzzydele Farms | Barred Rock | 1790 | 1927.45 | Mixed Age |
| A. M. Wolgemuth | White Leghorn | 1227 | 1329.90 | Mixed Age |
| Schwegler's Hatchery | New Hampshire | 831 | 888.05 | Mixed Age |

## High Pen, Each Breed, in Pennsylvania Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Booth Farms and Hatchery | White Leghorn | 6133 | 6451.75 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 4966 | 5278.40 | Two-Year |
| J. J. Warren | Rhode Island Red | 4531 | 4860.60 | Two-Year |
| Fuzzydele Farms | New Hampshire | 4511 | 4760.35 | Two-Year |

## High Hen, Each Breed, in Pennsylvania Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Fuzzydele Farms | White Leghorn | 573 | 620.40 | Two-Year |
| J. J. Warren | Rhode Island Red | 475 | 515.10 | Two-Year |
| Fuzzydele Farms | Barred Rock | 503 | 508.00 | Two-Year |
| Fuzzydele Farms | New Hampshire | 457 | 489.60 | Two-Year |
| Lindstrom Poultry Farm | White Wyandotte | 466 | 479.80 | Two-Year |
| A. M. Wolgemuth | White Leghorn | 658 | 706.55 | Three-Year |
| Fuzzydele Farms | Barred Rock | 587 | 636.05 | Three-Year |
| Schwegler's Hatchery | New Hampshire | 516 | 554.90 | Three-Year |

## High Pen, Each Breed, Vineland, N. J., Hen Test, for the Year

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| Sebold Poultry Farm | White Leghorn | 2260 | 2391 | Two-Year |
| E. N. Larrabee | New Hampshire | 1915 | 2059 | Two-Year |
| G. E. Coleman | Rhode Island Red | 1896 | 2035 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 1371 | 1480 | Two-Year |
| J. A. Hanson | White Leghorn | 1550 | 1665 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 1364 | 1458 | Four-Year |
| Raymond Gardner | White Rock | 577 | 622 | Four-Year |

## High Pen, Each Breed, Vineland, N. J., Hen Test—Lifetime Record

| Owner | Breed | Eggs | Points | Class |
|---|---|---|---|---|
| J. J. Warren | Rhode Island Red | 5611 | 6082 | Two-Year |
| Sebold Poultry Farm | White Leghorn | 5799 | 6030 | Two-Year |
| Nedlar Farm | New Hampshire | 5547 | 5956 | Two-Year |
| Schwegler's Hatchery | White Wyandotte | 4414 | 4664 | Two-Year |
| J. A. Hanson | White Leghorn | 7454 | 8005 | Three-Year |
| Kauder's Pedigreed Leghorns | White Leghorn | 10,028 | 10,576 | Four-Year |
| Raymond Gardner | White Rock | 5529 | 5865 | Four-Year |

## High Pen, Each Breed, in Illinois Non-Standard Test to October 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Walter Swanson | White Leghorn | 2316 | 2360.20 |
| Egyptian Hatchery | Barred Rock | 2136 | 2169.85 |
| Illinois Hatchery | Rhode Island Red | 1637 | 1769.20 |
| Mrs. Curtis Manshak | White Rock | 1668 | 1722.70 |
| Corn Belt Hatchery | New Hampshire | 1231 | 1332.70 |
| Macomb Hatchery | Buff Orpington | 1242 | 1276.00 |
| Belldear Hatchery | White Wyandotte | 1253 | 1267.55 |
| H. R. Harnes | Brown Leghorn | 942 | 882.40 |
| Wallace Moody | Buff Rock | 819 | 825.30 |

## All Time High Pen Score, Each Breed, in U. S. Standard Tests

| Owner | Breed | Year | Birds | Eggs | Points | Test |
|---|---|---|---|---|---|---|
| Kauder's Ped. Leghorns | White Leghorn | 1939 | 13 | 3791 | 4098.70 | Storrs |
| Homestead Farm | Rhode Island Red | 1938 | 13 | 3715 | 4000.65 | Storrs |
| Edward N. Larrabee | New Hampshire | 1938 | 13 | 3434 | 3685.30 | Storrs |
| Weber Duck Farm | Barred Rock | 1938 | 13 | 3620 | 3628.85 | Storrs |
| Townsley Hatcheries | White Rock | 1938 | 13 | 2956 | 3080.05 | Central New York |
| Eriksen's Ancona Yards | Ancona | 1938 | 13 | 3117 | 3022.00 | Storrs |
| Lonnie Van Sant | Black Australorp | 1939 | 13 | 2813 | 2972.40 | Arizona |
| Lindstrom Poultry Farm | White Wyan. | 1938 | 13 | 2742 | 2848.90 | Georgia |
| T. D. Brown | White Minorca | 1938 | 13 | 2416 | 2549.95 | Texas |
| Raymond Murphy | Jersey White Giant | 1938 | 13 | 2271 | 2447.40 | Missouri |
| Hall Brothers | Crossbred | 1937 | 10 | 2309 | 2406.75 | New York State |
| Crystal Springs Fm. | Rose Comb R. I. Red | 1932 | 10 | 2263 | 2337.25 | Rhode Island |
| E. J. Covey | Black Minorca | 1935 | 10 | 2103 | 2216.70 | Texas |
| Mrs. Maggie Thornton | Buff Orpington | 1933 | 10 | 2085 | 2207.30 | Texas |
| S. E. Raymond | Lamona | 1939 | 13 | 2056 | 2190.50 | Storrs |
| Donald C. Chandler | Silver Laced Wyan. | 1939 | 13 | 2121 | 2126.25 | Maine |
| Far-A-Way Farm | Buff Rock | 1933 | 10 | 2109 | 2111.00 | New York State |
| Lindstrom Poultry Farm | Buff Minorca | 1938 | 13 | 1948 | 2098.35 | Missouri |
| Wm. W. Lehman | Buff Leghorn | 1939 | 13 | 2036 | 2058.20 | Pennsylvania |
| F. V. Dufresne | Jersey Black Giant | 1932 | 10 | 1887 | 2024.55 | Passaic, N. J. |
| A. E. Hampton | Black Leghorn | 1931 | 10 | 2093 | 1964.15 | Hunterdon, N. J. |
| Blue Ribbon Farms | Rhode Island White | 1936 | 10 | 2152 | 1962.85 | Texas |
| Mrs. M. M. Clarke | Light Brahma | 1934 | 10 | 1780 | 1900.00 | Maine |
| Rush Springs Hatchery | Brown Leghorn | 1937 | 10 | 1858 | 1867.95 | Oklahoma |
| Harry L. Day | Exchequer Leghorn | 1934 | 10 | 1854 | 1835.80 | Florida |
| S. H. Palmer | Columbian Wyandotte | 1932 | 10 | 1840 | 1764.65 | Florida |
| Bestcroft | Silver Campine | 1936 | 10 | 1723 | 1744.40 | Hunterdon, N. J. |
| Olen C. Hudson | Columbian Rock | 1938 | 13 | 1818 | 1689.90 | Georgia |
| John Imhof | Light Barnevelder | 1933 | 10 | 1710 | 1680.00 | Maine |
| R. A. Padgett | Speckled Sussex | 1931 | 10 | 1602 | 1575.25 | Texas |
| Far-A-Way Farm | Buff Wyandotte | 1931 | 10 | 1638 | 1535.00 | Alabama |
| Capt. I. B. Clarke | Buff Australorp | 1937 | 10 | 1529 | 1502.80 | New York State |
| Skyland Farm | Houdan | 1931 | 10 | 1393 | 1448.30 | Passaic, N. J. |
| Holdenville Poultry Farm | Hamburg | 1933 | 10 | 1615 | 1442.00 | Oklahoma |
| Walter C. Dobe | Andalusian | 1935 | 10 | 1357 | 1424.15 | New York State |
| D. C. Gilles | Buttercup | 1932 | 10 | 1393 | 1366.30 | Florida |
| August D. Arnold | White Barnevelder | 1934 | 10 | 750 | 703.00 | Maine |

## All Time High Hen Score, Each Breed, in U. S. Standard Tests

| Owner | Breed | Year | Eggs | Points | Test |
|---|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 1939 | 340 | 372.30 | Storrs |
| J. J. Warren | Rhode Island Red | 1938 | 341 | 369.55 | Storrs |
| Weber Duck Farm | Barred Rock | 1937 | 334 | 362.00 | Maine |
| Edward N. Larrabee | New Hampshire | 1938 | 314 | 344.65 | Storrs |
| G. C. Murray | White Rock | 1933 | 307 | 333.35 | Texas |
| E. S. McSweeny | Black Australorp | 1939 | 302 | 322.20 | Arizona |
| T. D. Brown | White Minorca | 1938 | 304 | 321.30 | Texas |
| Perry T. Kistler | Crossbred | 1935 | 295 | 308.55 | Pennsylvania |
| Lindstrom Poultry Farm | White Wyandotte | 1939 | 296 | 305.35 | Pennsylvania |
| Crystal Springs Farm | Rose Comb R. I. Red | 1932 | 286 | 295.90 | Rhode Island |
| E. J. Covey | Black Minorca | 1937 | 278 | 294.95 | Texas |
| Raymond Murphy | Jersey White Giant | 1939 | 273 | 291.05 | Missouri |
| Eriksen's Ancona Yards | Ancona | 1937 | 291 | 288.00 | Storrs |
| Mrs. M. M. Clarke | Light Brahma | 1934 | 250 | 272.00 | Maine |
| L. C. Gravlee | Silver Laced Wyandotte | 1933 | 250 | 271.20 | Alabama |
| S. E. Raymond | Lamona | 1933 | 248 | 267.65 | Texas |
| Sunny Ridge Farm | Jersey Black Giant | 1933 | 244 | 266.80 | Rhode Island |
| Harry L. Day | Exchequer Leghorn | 1934 | 265 | 261.55 | Florida |
| Mrs. Maggie Thornton | Buff Orpington | 1933 | 250 | 260.95 | Texas |
| Far-A-Way Farm | Buff Rock | 1933 | 239 | 254.00 | New York State |
| A. E. Hampton | Black Leghorn | 1931 | 262 | 253.35 | Hunterdon, N. J. |
| Ward's Poultry Farm | Buff Leghorn | 1933 | 241 | 247.90 | Oklahoma |
| Blue Ribbon Farm | Rhode Island White | 1939 | 225 | 247.75 | Texas |
| Harry L. Phillips | Columbian Rock | 1939 | 224 | 243.70 | Missouri |

(Continued on page following)

## All Time High Hen Score, Each Breed, in U. S. Standard Tests

(Continued from page 701)

| Owner | Breed | Year | Eggs | Points | Test |
|---|---|---|---|---|---|
| Lindstrom Poultry Farm | Buff Minorca | 1939 | 247 | 242.10 | Rhode Island |
| Cedarlaid Poultry Farm | Brown Leghorn | 1936 | 278 | 241.15 | Florida |
| Far-A-Way Farm | Buff Wyandotte | 1931 | 230 | 240.05 | Alabama |
| August D. Arnold | White Barnevelder | 1934 | 249 | 236.00 | Maine |
| John Imhof | Light Barnevelder | 1933 | 227 | 229.00 | Maine |
| S. H. Palmer | Columbian Wyandotte | 1932 | 231 | 224.00 | Florida |
| Edward Nowak | Buttercup | 1932 | 225 | 218.60 | Florida |
| Walter C. Dobe | Andalusian | 1934 | 202 | 218.00 | New York State |
| Skyland Farm | Houdan | 1931 | 204 | 215.55 | Passaic, N. J. |
| R. A. Padgett | Speckled Sussex | 1931 | 201 | 208.40 | Texas |
| Bestcroft | Silver Campine | 1936 | 195 | 203.05 | Hunterdon, N. J. |
| Capt. I. B. Clarke | Buff Australorp | 1936 | 205 | 201.25 | New York State |
| Holdenville Poultry Farm | Hamburg | 1933 | 225 | 192.85 | Oklahoma |

## Hens Earning 320 or More Points Each for the Year

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 340 | 372.30 | Storrs |
| A. E. Guinn | White Leghorn | 335 | 366.35 | Georgia |
| Gulfkist Poultry Farm | White Leghorn | 319 | 348.00 | Florida |
| Sunshine Egg Farm | White Leghorn | 332 | 346.20 | Florida |
| Booth Farms and Hatchery | White Leghorn | 318 | 343.05 | Florida |
| Kauder's Pedigreed Leghorns | White Leghorn | 313 | 342.25 | Storrs |
| I. Commer | White Leghorn | 319 | 341.25 | Texas |
| J. C. Tomlinson | White Leghorn | 324 | 340.90 | Georgia |
| Henrich's Poultry Farm | White Leghorn | 314 | 340.15 | Missouri |
| C. T. Darby | White Leghorn | 322 | 339.35 | Passaic, N. J. |
| Hillview Poultry Farm | White Leghorn | 318 | 338.40 | Georgia |
| W. A. Seidel | White Leghorn | 316 | 337.45 | Texas |
| Dryden Poultry Breeding Farm | White Leghorn | 312 | 337.20 | Michigan |
| Kauder's Pedigreed Leghorns | White Leghorn | 311 | 335.40 | Storrs |
| John A. Clear | White Leghorn | 319 | 333.95 | Hunterdon, N. J. |
| Schwegler's Hatchery | White Leghorn | 320 | 333.20 | Central New York |
| Kauder's Pedigreed Leghorns | White Leghorn | 309 | 332.60 | Georgia |
| Kauder's Pedigreed Leghorns | White Leghorn | 306 | 332.60 | Storrs |
| Guy A. Leader | White Leghorn | 314 | 332.55 | Storrs |
| Vandermast Farm | White Leghorn | 309 | 332.00 | Pennsylvania |
| Guy A. Leader | White Leghorn | 310 | 331.65 | Pennsylvania |
| Booth Farms and Hatchery | White Leghorn | 306 | 331.55 | Florida |
| Kauder's Pedigreed Leghorns | White Leghorn | 303 | 331.05 | Storrs |
| Sand Springs Home Farm | White Leghorn | 317 | 330.75 | Texas |
| Dryden Poultry Breeding Farm | White Leghorn | 315 | 330.75 | Michigan |
| S. J. Drellishak | White Leghorn | 301 | 330.55 | Hunterdon, N. J. |
| Rinker Poultry Farm | White Leghorn | 302 | 330.35 | Pennsylvania |
| Woodlawn Farm | White Leghorn | 316 | 330.30 | Texas |
| Kauder's Pedigreed Leghorns | White Leghorn | 305 | 330.15 | Georgia |
| Foreman Poultry Farm | White Leghorn | 319 | 329.20 | Georgia |
| Stroehlein Brothers | White Leghorn | 301 | 329.10 | Western New York |
| Lindstrom Poultry Farm | White Leghorn | 305 | 327.80 | Texas |
| Pearl Poultry Farm | White Leghorn | 312 | 327.55 | Passaic, N. J. |
| Erath Egg Farm | White Leghorn | 311 | 327.45 | Texas |
| Creighton Brothers | White Leghorn | 301 | 327.45 | Texas |
| Lux Leghorn Land | White Leghorn | 301 | 327.35 | Missouri |
| Pearl Poultry Farm | White Leghorn | 298 | 327.35 | Hunterdon, N. J. |
| Roselawn Poultry Farm | White Leghorn | 309 | 327.20 | Georgia |
| I. Commer | White Leghorn | 318 | 327.15 | Texas |
| Dryden Poultry Breeding Farm | White Leghorn | 306 | 327.15 | Texas |
| Plainview Poultry Farm | White Leghorn | 311 | 326.70 | Florida |
| Missouri Valley Poultry Farm | White Leghorn | 312 | 324.75 | Michigan |
| Kauder's Pedigreed Leghorns | White Leghorn | 305 | 324.55 | Georgia |
| Kauder's Pedigreed Leghorns | White Leghorn | 300 | 324.55 | Storrs |
| John A. Clear | White Leghorn | 309 | 324.50 | Hunterdon, N. J. |
| Booth Farms and Hatchery | White Leghorn | 305 | 324.45 | Missouri |
| J. A. Hanson | White Leghorn | 303 | 324.45 | Storrs |

(Continued on page following)

## Hens Earning 320 or More Points Each for the Year

(Continued from page 702)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Wm. W. Lehman | White Leghorn | 311 | 324.20 | Pennsylvania |
| Foreman Poultry Farm | White Leghorn | 297 | 324.05 | Texas |
| Guy A. Leader | White Leghorn | 305 | 323.70 | Pennsylvania |
| W. A. Seidel | White Leghorn | 309 | 323.60 | Georgia |
| Nelson's Leghorn Breeding Farm | White Leg. | 302 | 323.50 | Texas |
| H. Guy Loose | White Leghorn | 303 | 323.05 | Pennsylvania |
| Lux Leghorn Land | White Leghorn | 305 | 323.00 | Georgia |
| Foreman Poultry Farm | White Leghorn | 316 | 322.55 | Pennsylvania |
| McCoon's Poultry Breeding Farm | White Leg. | 298 | 322.50 | Texas |
| Guy A. Leader | White Leghorn | 319 | 322.10 | Storrs |
| Missouri Valley Hatchery | White Leghorn | 313 | 321.25 | Georgia |
| Creighton Brothers | White Leghorn | 300 | 321.20 | Georgia |
| Booth Farms and Hatchery | White Leghorn | 298 | 321.10 | Georgia |
| Miriam Ayars | White Leghorn | 292 | 320.85 | Hunterdon, N. J. |
| Booth Farms and Hatchery | White Leghorn | 292 | 320.80 | Florida |
| Guy A. Leader | White Leghorn | 294 | 320.50 | Pennsylvania |
| Foreman Poultry Farm | White Leghorn | 294 | 320.25 | Georgia |
| George A. Pearce | White Leghorn | 317 | 320.20 | Passaic, N. J. |
| Ford's Riverbank Farm | Rhode Island Red | 336 | 357.75 | Maine |
| Weber Duck Farm | Rhode Island Red | 321 | 350.85 | Michigan |
| Globus Poultry Farm | Rhode Island Red | 341 | 348.85 | Maine |
| Ford's Riverbank Farm | Rhode Island Red | 318 | 345.10 | Michigan |
| Ralph W. Anderson | Rhode Island Red | 321 | 344.95 | Storrs |
| J. J. Warren | Rhode Island Red | 312 | 341.05 | Storrs |
| Ford's Riverbank Farm | Rhode Island Red | 343 | 339.35 | Maine |
| Ford's Riverbank Farm | Rhode Island Red | 327 | 337.10 | Maine |
| Thomas Mettler | Rhode Island Red | 311 | 336.40 | Passaic, N. J. |
| Thomas Mettler | Rhode Island Red | 310 | 334.20 | Hunterdon, N. J. |
| R. E. and F. H. Kendrick | Rhode Island Red | 310 | 334.20 | Rhode Island |
| Ford's Riverbank Farm | Rhode Island Red | 331 | 333.70 | Michigan |
| E. B. Parmenter | Rhode Island Red | 311 | 330.50 | Pennsylvania |
| Weber Duck Farm | Rhode Island Red | 307 | 329.55 | Pennsylvania |
| Wene Chick Farms | Rhode Island Red | 309 | 327.20 | Storrs |
| Weber Duck Farm | Rhode Island Red | 307 | 326.25 | Georgia |
| E. B. Parmenter | Rhode Island Red | 300 | 326.15 | Georgia |
| Ford's Riverbank Farm | Rhode Island Red | 326 | 325.80 | Maine |
| E. B. Parmenter | Rhode Island Red | 298 | 324.70 | Pennsylvania |
| Ford's Riverbank Farm | Rhode Island Red | 336 | 323.95 | Maine |
| Thomas Mettler | Rhode Island Red | 301 | 321.90 | Hunterdon, N. J. |
| Thomas Mettler | Rhode Island Red | 320 | 321.80 | Hunterdon, N. J. |
| Louis Schaible | Rhode Island Red | 315 | 321.65 | Hunterdon, N. J. |
| Mount Fair Farm | Rhode Island Red | 296 | 321.60 | Storrs |
| LaMaster Brothers | Rhode Island Red | 295 | 321.45 | Michigan |
| E. B. Parmenter | Rhode Island Red | 294 | 320.75 | Rhode Island |
| Globus Poultry Farm | Rhode Island Red | 311 | 320.20 | Maine |
| B. W. Rand | Rhode Island Red | 297 | 320.20 | Maine |
| Weber Duck Farm | Barred Rock | 320 | 336.35 | Georgia |
| E. B. Parmenter | Barred Rock | 307 | 332.05 | Pennsylvania |
| R. R. Parks | Barred Rock | 303 | 329.35 | Pennsylvania |
| Eben Wood | Barred Rock | 314 | 328.20 | Maine |
| R. C. E. Wallace | Barred Rock | 315 | 328.00 | Georgia |
| Egyptian Hatchery | Barred Rock | 301 | 327.75 | Missouri |
| E. B. Parmenter | Barred Rock | 309 | 326.60 | Maine |
| Edward N. Larrabee | New Hampshire | 317 | 334.70 | Storrs |
| S. C. Houck | New Hampshire | 310 | 334.30 | Pennsylvania |
| A. J. Williams | New Hampshire | 314 | 324.05 | Florida |
| Homestead Farm | White Rock | 302 | 328.95 | Storrs |
| E. S. McSweeny | Black Australorp | 302 | 322.20 | Arizona |

¶ A ROOSTER whose wings are reversed, with the ends of the feathers extending out toward the bird's breast, is owned by Donald Maybaugh of Wellington, Ohio, according to the Prairie Farmer for October 21, 1939.

## Among Our Contributors

**Mark Witmer** (p. 641), who carries 9,000 layers on four different farms at Dalmatia, Pennsylvania, has been practicing year around brooding since 1929. Because of his year around brooding activities and his sales of chicks to other poultry raisers, his chick production last year exceeded 325,000 chicks from an incubator capacity of 68,000 eggs, the unusually high ratio of 4½ chicks per egg capacity. In 1932, he was named one of Pennsylvania's Masters Farmers. He is president of the Pennsylvania State Poultry Association, a position he has held since 1935.

**E. B. Parmenter** (p. 652), had his first pen of chickens when he was seven years old. One of his first thrills came when he stayed home from high school a whole day to hatch his first chicks in an incubator. He lists other big thrills in his career as a poultry raiser as using tracheitis vaccine for the first time; producing his first 300-egg hen, and even greater, his first 300-egg hen whose daughter also laid 300 eggs; and winning a world's record at an egg laying test.

He graduated from Massachusetts State College in 1915, returned home to help his father construct buildings and establish a modern poultry plant. He started trapnesting in 1915, hasn't missed a day since. About 2,500 birds are started annually in the traps. He has 50 single mating R.O.P. pens from which he raises 10,000 pedigreed chicks annually. On his farm are 15,000 breeders, all mated to R.O.P. males.

Parmenter Reds have been outstanding in laying test competition, having been the winning Rhode Island Red pen at 24 contests from 1931 to 1938, and the highest pen among all breeds at 11 tests over the same eight years. His world record for a 10-bird pen was made in 1935 at the Rhode Island Test.

**Arthur Hannah** (p. 649) is a member of a family which has been in the poultry business for 40 years at Grand Rapids, Mich. The Hannah farm, devoted to the breeding of White Leghorns, is Michigan's largest R. O. P. breeding farm and ranks among the largest R. O. P. farms in the United States. Each year, more than 3,000 individually pedigreed birds are trapped. Some 55 special one male matings are maintained, and 20,000 individually pedigreed chicks are produced annually.

**Reese V. Hicks** (p. 669) made his start in the poultry industry operating his own poultry farm in Tennessee while he was deputy livestock inspector and editor of a country newspaper. From Tennessee he went to Kansas to become associated with the Capper Publications as editor of Poultry Culture. His next move was to Browns Mills, N. J., where he was manager of one of the largest hatcheries and poultry farms in existence at the time. After that, he became associated with a poultry correspondence school and a feed mill in Missouri. His appointment as executive secretary of the International Baby Chick Association came in 1925. Under his leadership, the I. B. C. A. has been recognized as the most active national organization within the poultry industry. Probably no other individual has devoted as much energy to secure national legislation favorable to the poultry industry and to fight those laws and regulations that may harm poultry raisers.

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**Mark Witmer** (p. 641), who carries 9,000 layers on four different farms at Dalmatia, Pennsylvania, has been practicing year around brooding since 1929. Because of his year around brooding activities and his sales of chicks to other poultry raisers, his chick production last year exceeded 325,000 chicks from an incubator capacity of 68,000 eggs, the unusually high ratio of 4½ chicks per egg capacity. In 1932, he was named one of Pennsylvania's Masters Farmers. He is president of the Pennsylvania State Poultry Association, a position he has held since 1935.

**E. B. Parmenter** (p. 652), had his first pen of chickens when he was seven years old. One of his first thrills came when he stayed home from high school a whole day to hatch his first chicks in an incubator. He lists other big thrills in his career as a poultry raiser as using tracheitis vaccine for the first time; producing his first 300-egg hen, and even greater, his first 300-egg hen whose daughter also laid 300 eggs; and winning a world's record at an egg laying test.

He graduated from Massachusetts State College in 1915, returned home to help his father construct buildings and establish a modern poultry plant. He started trapnesting in 1915, hasn't missed a day since. About 2,500 birds are started annually in the traps. He has 50 single mating R.O.P. pens from which he raises 10,000 pedigreed chicks annually. On his farm are 15,000 breeders, all mated to R.O.P. males.

Parmenter Reds have been outstanding in laying test competition, having been the winning Rhode Island Red pen at 24 contests from 1931 to 1938, and the highest pen among all breeds at 11 tests over the same eight years. His world record for a 10-bird pen was made in 1935 at the Rhode Island Test.

**Arthur Hannah** (p. 649) is a member of a family which has been in the poultry business for 40 years at Grand Rapids, Mich. The Hannah farm, devoted to the breeding of White Leghorns, is Michigan's largest R. O. P. breeding farm and ranks among the largest R. O. P. farms in the United States. Each year, more than 3,000 individually pedigreed birds are trapped. Some 55 special one male matings are maintained, and 20,000 individually pedigreed chicks are produced annually.

**Reese V. Hicks** (p. 669) made his start in the poultry industry operating his own poultry farm in Tennessee while he was deputy livestock inspector and editor of a country newspaper. From Tennessee he went to Kansas to become associated with the Capper Publications as editor of Poultry Culture. His next move was to Browns Mills, N. J., where he was manager of one of the largest hatcheries and poultry farms in existence at the time. After that, he became associated with a poultry correspondence school and a feed mill in Missouri. His appointment as executive secretary of the International Baby Chick Association came in 1925. Under his leadership, the I. B. C. A. has been recognized as the most active national organization within the poultry industry. Probably no other individual has devoted as much energy to secure national legislation favorable to the poultry industry and to fight those laws and regulations that may harm poultry raisers.

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# NATIONAL POULTRY DIGEST

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INTENTIONAL SECOND EXPOSURE

## First Volume Completed!

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From the standpoint of printing costs, the DIGEST will end its first year of publication paying its own way. The time required in assembling material and preparing it for publication represents a contribution of Everybodys Poultry Magazine Publishing Company and the editors who spent hundreds of hours after office hours searching for articles and sifting them down as to their desirability for appearance in the DIGEST. Scores of magazines and papers from which we have taken no material to date, are examined each month because of the possibility that they may at sometime contain something of interest to DIGEST readers.

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NATIONAL
POULTRY DIGEST

Published monthly at Hanover, Pa., by Everybodys Poultry Magazine Pub. Co., Inc. C. N. Myers, pres.; Jas. T. Huston, vice-pres.; R. B. Alleman, sec.-treas., Roland C. Hartman, editor; Thomas E. Moncrief, associate editor. Single copies, 25 cents. Back copies, 40 cents. Subscriptions: $2.00 a year in the United States and the Pan-American postal union; $3.00 a year in Canada and foreign countries. Binder holding 12 copies, $1.00 postpaid in U. S. A. Entered as second-class matter Jan. 20, 1939, at the post office at Hanover, Pa., under the act of March 3, 1879.

Vol. 1, No. 12 December, 1939

# Outlook for Poultry and Eggs

By Richard J. Foote

*Reprinted from The Agricultural Situation*

THE outlook is for larger supplies of poultry and eggs during the remainder of 1939 and the first half of 1940 than a year earlier. During the latter part of 1940 supplies may be somewhat smaller than in 1939. The effect of these larger supplies on prices will be at least partly offset by the effect of larger consumer incomes during the remainder of 1939 and the first half of 1940, as compared with a year earlier. Smaller supplies and larger consumer incomes in the latter part of 1940 are expected to result in general improvement of the poultry and egg situation.

### Feed Plentiful

Feed supplies are again plentiful this year, but numbers of livestock on farms have increased so that the supply of feed per grain-consuming animal unit will be 3 per cent smaller during 1939-40 than in the previous year. However, supplies per animal unit will be 8 per cent above the 1928-32 average.

Since September the relationship between feed and egg prices has been much less favorable to producers than a year ago or than the 1928-37 average. During September 2.4 dozen more eggs were required to purchase 100 pounds of poultry ration at Chicago prices than in 1938 and 0.7 dozen more than were required on the average for the corresponding month during 1928-37. It is expected that the relationship between feed and egg prices will continue less favorable to producers than a year earlier during the remainder of 1939 and the first half of 1940 and possibly less favorable than the 10-year average.

Bureau of Agricultural Economics, U. S. Department of Agriculture, Washington, D. C.
(The Agricultural Situation, November 1939)

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Bureau of Agricultural Economics, U. S. Department of Agriculture, Washington, D. C.
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INTENTIONAL SECOND EXPOSURE

Because of the unfavorable feed-egg ratio, hatchings in 1940 are expected to be smaller than the large hatch of 1939. Commercial hatchings in 1939 were the largest on record, and 21 per cent above 1938, but because of the continued shift from farm to commercial hatchings, total hatchings did not increase by so large a percentage.

### Heavier Egg Production

Egg production during the first 9 months of 1939 was 4 per cent larger than in 1938, the increased number of hens more than offsetting the slightly lower rate of lay per hen. On October 1, 1939, laying flocks were 4 per cent larger than a year ago and are expected to continue somewhat larger than a year earlier during the first half of 1940.

As a result of the expected smaller hatch in 1940, laying flocks in the latter part of that year may be somewhat smaller than in 1939. The rate of lay per hen is expected to continue well above the 1928-37 average and about the same as a year earlier. Consequently, egg production during the first half of 1940 will probably be slightly larger than a year earlier but may be somewhat smaller in the last few months of 1940.

### Storage Holdings

Storage stocks of shell and frozen eggs combined on October 1 were 12 per cent, or 985,000 cases larger than on the same date in 1938. The out-of-storage movement so far this year has been about the same as last. Storage stocks usually reach a peak in August and a low point in February or March.

Marketings of dressed poultry during the first 8 months of 1939 were 24 per cent larger than a year earlier, largely because of increased marketings of hens and winter broilers. Marketings are expected to continue well above last year during the remainder of 1939, because of the increased number of hens and chickens on farms and the large increase in turkey production. During early 1940 farmers may market a slightly larger number of hens from their larger laying flocks. Marketings during the latter half of 1940 are expected to be smaller than in 1939 because of the prospective smaller hatch.

The heavy into-storage movement for poultry has just begun. Because of the larger supplies of poultry available, the into-storage movement is expected to be larger than in 1938 but smaller than the record high movement in 1936. Storage stocks on January 1, 1940, are expected to be larger than a year earlier. The into-storage movement during the latter part of 1940 is expected to be smaller than that in 1939.

### Increase in Broilers Likely

Some further increase in the number of fall and winter broilers to be raised in the principal commercial broiler-producing areas in the East is in prospect for the coming winter unless feed costs increase further. Should any material expansion of production occur, it probably would more than offset whatever price advantage is to be gained through the more favorable demand situation.

The number of turkeys raised this year was the largest on record—22 per cent above last year and 15 per cent above the previous record high year in 1936. As a result of the very large production of turkeys, prices will be lower for the crop of 1939 than for the crop of 1938. However, the effect of the larger supplies on prices will be partly offset by the effect of larger consumer incomes. Another factor that has helped to support prices in recent years has been the rapidly increasing use of turkeys throughout the year. Large increases in production such as occurred this year have invariably been followed by recessions in production. Such a recession is to be expected next year.

Any influence which the European War may have on prices for poultry and eggs will be largely a result of its effects on our domestic economy, since it is not probable that exports of poultry meats or of eggs and egg products will increase within the next year to a sufficient extent to affect prices materially.

## *Necrosis of the Beak*

Necrosis of the beak has been the cause of considerable concern in a limited number of flocks for the past several years. The condition is characterized by necrosis (death of a circumscribed portion of tissue) of either the lower or upper portion of the beak. In some cases either or both portions of the beak may be lost. The term "Andy Gump" disease has been applied by some poultrymen after the lower beak has dropped off.

Reports by investigators indicate that the sticking of finely ground feed to the beak initiates the inflammatory process which results in necrosis. Information on the cases which we have observed is incomplete. The majority, if not all, of the flocks have been on an all-mash feeding system. This difficulty should not be a condemnation of the all-mash feeding system, as it occurs in a very limited number of flocks and other factors may be responsible in part, particularly the fineness of the grinding of the feed.

In some flocks the males only are affected and mating is interfered with. One observant poultryman noted that with his particular type of water fountains the males were unable to rinse their beaks while drinking. The trouble stopped after substitution of another type of water container.

Individual cases under our observation have always cleared up and the beak has healed when the necrotic material was removed, the exposed surface painted with tincture of iodine, and free access to water, mash, and scratch feed was given. In severe cases considerable time may be required to grow a new beak.

—K. L. Bullis, Massachusetts State College, in Featheredfax, Nov. 1939.

¶ A UNIQUE method of dressing broilers in the East has been developed recently and is now being employed in at least one New England country dressing plant and in one or two Boston plants. Alfred Lunn, Jr., of Halifax, Mass., is the dresser referred to. The method consists of the usual semi-scald in hot water followed by a roll in a box or carton of sawdust. The sawdust clings to the feathers and serves the same purpose as the customary double dip in wax. When the sawdust is pulled off the feathers come off with it. This method is said to be just as effective as wax and considerably less expensive.
—The American Produce Review, Oct. 4, 1939.

# Hatchery Management as a Service to the Entire Poultry Industry

By G. S. Vickers
Field Manager, Ohio Poultry
Improvement Association

*Condensed from a Talk*

OURS is an age of specialization. The development of the hatchery industry is a part of this system of specialization and can be justified only on the premise that hatcheries can hatch, produce and sell to poultrymen and farmers better chicks at lower prices than they can produce themselves.

Disregarding for the moment the matter of improved breeding and better quality chicks, it would appear that the hatcheries should be able to hatch eggs more efficiently and more economically than the farmers and poultrymen can for themselves. For each person to hatch his or her own chicks would require an investment in incubating equipment. When the cost, depreciation and maintenance of such equipment for hatching once each year is figured, since most people prefer only one brood of chicks per year, the cost per chick usually amounts to more than the cost of having hatcheries custom-hatch the eggs. This is due to the fact that the hatcheries can prorate their costs over an entire season and a very large number of chicks. Furthermore, hatcheries should be able to get better hatches than the average person with small incubators because of better controlled incubating conditions, made possible by more accurate regulators of temperature, moisture, and ventilation in the large modern incubators.

## Hatcheries Improve Flocks

One of the great services to the poultry industry that the hatchery industry can perform is to secure from such breeders superior stock in the form of pedigreed males to head their better flocks from which chicks are sold to those desiring such quality and equally important to supply chicks to the remainder of the flocks supplying eggs to the hatcheries. The repeated use of such males very rapidly improves the quality of chicks produced as proven in many careful experiments.

Combined with the securing of improved stock, the hatcheries should carry on a careful program of culling, selection and blood testing of all breeding flocks by competent persons and careful selection of hatching eggs for size, color and shell quality. Practically all states now offer, through the poultry departments of their State Colleges, State Universities or State Departments of Agriculture, competent instruction in culling, selection and blood testing, which is open to the public. There is no excuse for incompetency in this work. Improvement by careful culling and selection alone is a much slower process of improvement than when combined with the introduction of good stock from breeders of good strains, but is the very least that any hatchery should do.

Presented at the Seventh World's Poultry Congress, Cleveland, Ohio, Aug. 3, 1939

In a great many areas, eggs are bought on grade and the prices received by producers are influenced a great deal by the grade. Many of the factors determining grades such as size, color, and shell quality are largely qualities determined by the inheritance of the hens producing the eggs. It is obvious then, that the quality of breeding stock, as regards these factors, will in a large part determine the quality of eggs and the prices received by farmers and poultrymen. Hatcheries, therefore, can help to increase the income received by their chick-buying customers by seeing that the breeding stock used has the inherited factors that tend to produce eggs of desirable size, color, and shell quality, and further strengthening this program by carefully sorting the hatching eggs used and eliminating the undesirable.

In practically all parts of the country, poultry is purchased on grade to a more or less large extent. For instance, at nearly every market, bareback broilers are discounted. This condition is partly a matter of inheritance. Hatcheries can help to control it, and thereby increase the income received by producers, by making a practice of selecting rapid feathering stock and eliminating slow feathering strains and individuals, particularly by selecting early feathering males at about broiler age from which a second selection can be made later.

The expense and work of careful poultry breeding including trapnesting, pedigreeing, progeny testing and careful selection for desirable breed characteristics is large, and stock from good strains cannot be produced and sold at low prices. Much high class breeding stock is now sold for less than it should be to properly remunerate the breeders. The cost of careful culling and selection, plus the cost of good breeding males and breeding stock would be an expensive proposition for an individual for producing only his own chicks because the overhead cost per chick would be too high. But the hatcheries, by prorating these expenses over a large number of chicks, sell the same quality to the poultrymen and farmers for less than they can produce them themselves and are thereby rendering a valuable and economical service to the poultry industry.

## Key Flocks Should Furnish Males

It should be very evident that the institution of an improvement program by hatcheries wherein they establish seed or key flocks in which good pedigreed males and stock from good strains are used and those flocks used in turn to produce chicks to replenish all the hatchery flocks will result in a very rapid improvement of all hatchery flocks and, hence, raise the quality of chicks produced from hatcheries conducting such a program.

Many breeder hatcheries and many commercial hatcheries have gone still further than this and now use pedigreed males in all flocks supplying eggs and replenish all breeding flocks with stock direct from the home breeding flock or from good breeders. Such hatcheries are to be commended and are entitled to special consideration by buyers who want quality chicks and are willing to pay a slight premium for them.

## National Plan Has Helped

The adoption of the National Poultry Improvement Plan by the various states in cooperation with the United States Department of Agriculture is a movement which provides a sound and logical program of improvement. The U. S. Record of Merit and U. S.

Record of Performance stages are breeding stages where careful selection, trapnesting, pedigreeing and progeny testing are carried on by the breeders. Many of these breeders also operate good sized hatcheries in which the egg supply flocks are improved by males and stock from the home breeding flock.

The U.S. Verified and U.S. Certified stages are primarily hatchery stages which require the use of all pen pedigreed and individually pedigreed male birds from Record of Performance individuals and breeding pens, thus securing in the chicks produced from such hatcheries the superior germ plasm provided in the breeding stages.

The U. S. Approved stage is a hatchery stage requiring that all breeding flock be carefully culled and selected for standard and production qualities. While the use of R. O. P. and pedigreed males is not required in this stage, a very large number of them are used in the seed or foundation flocks and for the better matings. In this manner, as in the Certified and Verified stages, the benefits of good culling and selection plus the use of stock from the good breeders are used to produce better chicks.

### Pullorum Testing

A few years back, during the early stages of the hatchery business, before blood testing of the breeding flocks for pullorum disease was extensively done, the losses in chicks were rather heavy from this disease and everyone more or less expected losses during the first few weeks. Then the tube test was developed, which demonstrated beyond doubt that losses from this disease could be reduced or eliminated by the testing of the breeding flocks and removing infected breeders. But the tube test, because of the cost and labor involved, was not extensively adopted. Then the rapid whole blood test was developed, which was more suited to use by the great mass of hatcheries, with the result that it is used today by a very large percentage of all hatcheries.

A great deal of research work and years of observation has proved beyond doubt that the effectiveness of testing is dependent upon how much of the infection in breeding flocks is eliminated. Where considerable infection is present, one test a year does not usually remove all infection and a careful program necessitates retesting of such flocks if the infection is to be eliminated entirely, or reduced to such a low level that little trouble will be experienced in rearing the chicks.

One criticism of hatcheries today is that many of them do little or no retesting, regardless of how much infection is found on the first test, with the result that losses from pullorum disease are still much greater than they should be. Experience has also shown that once the amount of infection is reduced or eliminated, less trouble from the disease is experienced thereafter. This is very logical to expect, in view of the fact that the disease is transmitted through the eggs to the chicks, spread in incubators, spread in the brooders, especially when brooding conditions are poor, and probably from adult to adult bird. Pullorum testing under some type of careful supervision is desirable largely because the supervising agency will insist that the necessary retesting be done in flocks showing a large amount of infection to be present.

It is easy to see that the conducting of a careful pullorum disease testing program would be expensive for an individual to do if he were to carefully test a flock merely to hatch one bunch of chicks, whereas the hatchery can do a careful job, prorate the cost over a season's output and thus make the cost per chick for such a program very low. Here, again, the hatcheries which carry on a thorough testing program can and do perform a distinct service to the poultry industry much more economically than could otherwise be done.

### Public Still Price-Minded

Unfortunately a large part of the public still seems to want to buy chicks largely on price, in spite of the fact that the saving of a very few dollars in the purchase of chicks is false economy if poor quality is secured, and when it is remembered that the value of chicks is in how they live and grow and what they produce as mature birds; in other words, their profit-making ability. Cheap chicks that do not make profits later are expensive regardless of how little they cost, and regardless of how much is saved in the purchase price.

The buying public should realize that it costs money to purchase good breeding males and good breeding stock and that it costs money for hatcheries to purchase stock of this kind for flock improvement. It also costs money to carry on a careful culling, selection and blood testing program, especially where all flocks are tested until they reach a low level of reaction to pullorum disease or where it is eliminated. Producing high grade chicks that will live, grow properly, and develop into profitable mature stock cannot be done for nothing and those with exceedingly low prices simply cannot produce real high quality chicks, not for very long, at least.

The hatchery industry has also performed a service to the poultry industry by making available turkey poults and ducklings. The cost of maintaining breeding flocks and the operation of incubators for hatching the eggs by each raiser would be costly and uneconomical and they find it much better to buy their poults and ducklings from hatcheries. The owners of breeding flocks also find it more profitable because the hatcheries can buy their entire output of hatching eggs for the entire season, whereas prior to the advent of hatcheries, many of the eggs were not needed and were not used. Also the turkey and duck breeders and hatcheries are making progress in the selection of breeding stock so that the type of turkeys and ducks grown will be better suited to the changing public demand. Here, again, is another instance of where the hatchery industry can and is performing a service more efficiently and more economically than most producers could do it themselves.

### Other Hatchery Services

Hatcheries can and do perform many other services to the poultry industry of their communities. They consult with farmers and poultrymen on management, feed and disease problems, and offer advice on the best ways to handle these problems. They often are leaders in their communities in securing better marketing conditions. More and more the poultry industry is centering around the hatcheries and it is a responsibility of hatcherymen to assume this leadership and see that efforts are directed along lines that will prove profitable and helpful to the farmers and poultrymen, because the more prosperous the farmers, the more prosperous will be the hatcherymen.

# Color in Merchandising Feeds

By Robert Latimer

***Condensed from Feedstuffs***

THE feed retail industry used to be well known for the colorful way in which its buildings and stores were treated—for example, the brilliant blue, red and white checkers which still are identification-marks for feeds all over the country. But, there hasn't been much forward progress since that step was made, and other trades are outstripping the feed business unreasonably.

Most significant of all are the grocery outlets — no longer is the grocery store a place of drab exteriors and shelving. Instead, they have become clean, colorful and pleasant places to shop, with glass fronts in bright primary colors, rainbow-hued delivery trucks, and plenty of the same idea in bills, posters, and even uniforms.

Why not carry out the same idea in the feed industry? Remember that the feed dealer has hundreds of ways in which to work color into his every day dealings—catalogs, mailing pieces, trucks, showrooms, windows, storefronts, displays, drivers, packaging and sacks. What business stands out in your memory of any city you have visited for any length of time? Florists, of course, because color is played up in that trade powerfully, for it is an essential of good business to them.

### Effects of Various Colors

The first step in a "colorizing" program, of course, should be the feedstuffs dealer's building, combined with a little clever psychology. Various colors have widely different effects on people. For instance, black is a depressant color, and does little to remind the public of anything but morbid subjects, whereas red, green or yellow are all attention-pullers.

Yellow is outstanding as an interest stimulator, because it can be so easily seen. Big league baseball recently adopted yellow baseballs for practice, and may use them for league games—but on the other hand yellow is prone to gaudiness. The safest system would be to work up some pleasant combination of red or green, shaded a little off the brilliant point. A store front in reduced red, with yellow letters and window frames offers an attractive change from drabness. Light green, with white as an offset, is another valuable combination—research has shown that green has an atmosphere of quality and freshness—which is why so many department stores use only green wrapping paper for deliveries and store purchases.

### Same Color for Trucks

Brighten up the feedstore in this way as a preliminary step, then follow it through in every way possible. Your trucks should be immediately converted into traveling reminders of the store, by using exactly the same color scheme. Paint your delivery units one solid color, using signs in the same contrast as the front of your store, and if possible, uniform the drivers in the same way. The brighter the hue, the better the results, for parked or rolling, the truck will cause customers to think "Blank's Feedstore; reminds me I need more poultry feed." If white sidewall tires won't strain your budget, get them by all means — beauty in your delivery equipment means quality and service to the customer.

The inside of the store is the focal point for all this color design — the customer doesn't expect or want to step through a brilliant doorway into a dull, uninteresting interior. Seed companies have learned the value of this—they use ivory and green as a rule, and leave color up to their merchandise with a great deal of success. Paint your counters the same color as the building exterior, then contrast it with light shelving. If you're merchandising carton-packed goods in light boxes, they'll sell better if placed on a dark green or red background.

Open sacks of feeds don't lend themselves readily to colorizing—but this can be done by using brightly colored price signs struck in the feed itself, and even placing yellow or orange scoops in the feed.

Lighting is important to bring out color. Plenty of overhead wattage will insure the full effect of contrast. Even cash registers and weighing scales are now available in any specified color, so that it is possible to completely colorize the interior.

### Put Clerks in Uniforms

Uniforms in color will step up sales by clerk-to-prospect. It gives an impression of competence and breaks down the unfamiliarity of a new customer.

Zenn Kaufman relates a story of a lumberman named Green who painted his yard all green, used green ink and paper, put green uniforms on his employees, and used the slogan "When you think of Green, think of Lumber." The idea boosted his business tremendously, even in a concentrated business like the lumber trade.

Miller Publishing Company, Minneapolis, Minn.
(Feedstuffs, Nov. 11, 1939)

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❝ WHAT was described as a "widespread poultry swindle" was heard at Lincoln, England, recently, when Wilmer Wigelsworth, a commercial traveller, of Leeds, was sentenced to 12 months' imprisonment for false pretences. It was stated that of 1,900 reputed pullet chicks sold by Wigelsworth, all except nine turned out to be cockerels.

—Poultry World, London, England, Oct. 13, 1939.

❝ GOBBLING dogs, owned by Mike Barno, Ebensburg, Pa., recently got him into a lot of trouble with the owner of a flock of turkeys. Justice of the Peace Charles P. Rowland ordered Barno to pay $194.50 for 80 turkeys killed and 56 injured by the dogs. The dogs were shot.

—Newspaper Article.

❝ JOE MIKULICH of San Pablo, Cal., has discovered that hens, suffering from shell shock, lose their capacity for laying and he wants to know what the Government is going to do about it. The 143rd field artillery of the National Guard recently planted a shell in his poultry plant. His poultry house was destroyed, most of the chickens killed, and the others, suffering from shell shock, have not laid an egg since.

—Newspaper Article.

# Hatching Several Hundred Thousand Turkey Poults Annually

By Nat C. Thompson
**Poehlmann Hatchery, Petaluma, Calif.**

*Condensed from a Talk*

WE started hatching poults a good many years ago when the turkey hen was still the prevailing method of hatching and brooding. We grew as the industry changed from hen hatching and brooding to artificial hatching and brooding of poults. With the exception of the spring of 1937 when we hit the bottom with a jolt, we have had little difficulty in selling our annual production of poults. Of course, we are located in one of the very good turkey producing districts of the country.

The turkey egg capacity of our two plants, one located in Petaluma, California, the other in Salt Lake City, Utah, is approximately 100,000 eggs per week. Poults from our Petaluma plant are used to supply that area included in California, Nevada, Oregon and Washington, while the Salt Lake City plant supplies points in the Rocky Mountain area and East.

The Salt Lake City plant is devoted to the hatching of turkey poults exclusively and must remain idle a greater part of the time. During this period, the permanent employees are kept busy calling on customers for the purpose of servicing and selling.

For the purpose of turkey hatching, any reasonably well designed machine should prove satisfactory if properly operated. We use three different makes of so-called mammoth incubators besides our own flat tops. In our Petaluma plant we use quite a few flat tops for turkeys and they prove satisfactory. In our Salt Lake City branch, we use the newer modern machines and produce an excellent poult.

### The Egg Supply

One of the most important links in the hatching chain is the breeder turkey hen. We are fortunately situated in that we can go into the field and line up our own flocks. We believe this to be an advantage. We have, during the last several years, maintained in most cases the same breeding flocks. This makes it possible to build up better flocks gradually, especially from the standpoint of breeding or flock improvement.

Most of the eggs are delivered to us twice a week. The eggs from some of the nearby flocks are delivered three and four times a week; and one or two of our large producers deliver daily. Some hatcherymen prefer to have the eggs sit a day on the floor before placing them in incubators. In many instances we have taken them from the train or from trucks and placed them in the incubators immediately. We have also taken eggs fresh from our own ranch and set them when they were still warm. It does not, in our opinion, make any difference. If the eggs are any good, they will give you the desired results and you do not have to cool them off or "calm them down" before setting.

**Presented at the Seventh World's Poultry Congress, Cleveland, Ohio, Aug. 4, 1939**

The output of 30,000 hens is required to supply us with sufficient eggs. In estimating the number of hens we need, it is necessary for us to anticipate the coming season's demand for poults. We are generally able to do this by the middle of December—in plenty of time to take on a few additional hens or to cut down on the flocks, as the case may be.

In the spring of 1937 we almost went to the cleaners in an endeavor to carry our egg contracts through so that our growers would not lose money. After the sad experience of carrying our egg contracts through, we stopped giving contracts and guarantees. There is enough profit to be made in just an ordinary good egg season that we tell the growers they have to take the same chances we take. If we have a good season, they stand to make a good profit, and they have to do very poorly before they will actually lose money. After the experience of 1936 and 1937, we believe we can gauge our season fairly accurately; that is, after we have observed the Thanksgiving and Christmas markets.

### Standards for Turkey Eggs

In various parts of the country, different requirements prevail insofar as egg size, shell texture and fertility guarantees are concerned. The customary egg size is 30 ounces per dozen minimum, just a little heavier than a good sized chicken egg and entirely too small. Thirty-two ounces should be the minimum weight of turkey hatching eggs. This is our requirement.

While it is true that you can get a good poult from a small egg and that poult will develop into a large bird at marketing time, nevertheless, we do not want a small egg. As a commercial hatchery, we are interested in producing a large, rugged poult. Many of us make long shipments. On these long shipments the best of poults will be dried down considerably when they arrive at their destination, and the small poults will almost "float out of the box when the lid is removed."

Most shippers guarantee 75 per cent fertility as a minimum. Anyone who cannot produce eggs of 85 per cent fertility has no business producing turkey eggs for hatching and should be willing to adjust on that basis. We require 85 per cent fertility. Any hatchery that pays out a considerable sum of money for turkey eggs and has to take the risk attendant to a turkey season is entitled to something for his money. The egg producer demands and gets all the traffic will bear plus sometimes a little more. The traffic will not permit a mere 75 per cent fertility. If a hatcheryman must pay a top price for eggs, he is entitled to top fertility which, in my opinion, is not less than 85 per cent.

### The Pullorum Situation

One of the more recent developments which will affect turkey hatching very seriously is the pullorum situation. I have turned to Dr. Billings' June 17 News Letter for what I consider a well written introduction to this subject which I quote here:

> "There appears to be lots of pullorum disease (B.W.D., white diarrhea) in turkeys this spring. I don't like to admit it, but it's getting worse as the seasons go. I'm afraid it won't be long before all breeding stock will have to be tested to remove any adult birds harboring this infection. Of course, you know this trouble is largely transmitted by the breeding hens who lay the eggs that carry the germs that infect the little poults and cause them to die like flies soon after they are hatched. Putting medicine in the drinking water will not stop an outbreak of pullorum disease. Meet the present outbreak as best you can and save as many as possible by general clean-up methods. But try not to let it happen next year. You

have to go back to the breeding flock and remove the hens that carry the disease in their ovaries. Someone is always asking, 'Is this test you are talking about 100 per cent accurate?' No, it is not. There isn't anything 100 per cent sure except death and taxes. However, that need not discourage you because when done properly by people who know what they are doing, the test is decidedly worthwhile. I agree with you that it is a nuisance to have to test the breeding stock. The chicken people have found that out but they are gradually falling in line. With the turkey business becoming commercialized it looks like the turkey grower will have to do likewise. He may have to do it in self-defense if he sells eggs or poults because buyers are clamoring for poults or eggs from tested flocks. My friend, I don't like it any more than you do, but that's the situation."

I believe a man who has tested several thousand turkeys, if he is familiar or proficient in the art or act of testing, and I refer now to the whole blood method, is in a position to make certain observations. In addition we have check tested birds over a period of three or four months and have had a chance to personally observe one test against the other. We conducted three separate tests about 30 days apart, the tube test being conducted by one of our state department of agriculture veterinarians. As a result of this work I feel that a quite satisfactory test can be made with the whole blood method. Perhaps it is not as efficient as the tube, but I do certainly disagree with those experts who steadfastly maintain that it is a waste of time to test turkeys by the whole blood method. If for any reason laboratory facilities are not available, you can test by the whole blood method and feel confident that you are removing a large per cent of reactors.

### Whole Blood Method Accurate

If you should test using the whole blood method and find no reactors, then you can feel sure that the flock is clean. If one is operating on a small scale and is located where laboratory service can be conveniently obtained, there is no objection whatever to the use of the tube test; but when one is operating on a mass production basis, for example, an annual test of 30,000 or more hens, and is located some distance from an adequately equipped laboratory, the tube test becomes a burdensome problem.

Once more, if the laboratory for tube testing is not available, then make a series of whole blood tests and if the mixing and reading is carefully done the desired end will be accomplished. I will probably be criticised for the foregoing statement, but we men in the field, handling thousands of birds at the cost of hundreds of dollars each year, are not engaged in an idle gesture. We are fully aware of the importance of blood testing, even more aware of the necessity of accurate testing and are willing to go to any extreme which is not economically unsound to obtain clean breeding flocks. The man in the field soon becomes proficient with the whole blood or plate method; and I firmly believe that with a little cooperation from our leading research institutions and colleges, the whole blood test for turkeys can be improved so as to be entirely satisfactory for official use.

Some years ago when we started testing chickens, we were told that the whole blood method was not satisfactory and should not be used. Today it is recognized as satisfactory. Whether the operators have become more proficient or whether antigens have been greatly improved, I am not prepared to say; but if the same improvement can be accomplished in our turkey work, the problem of blood testing of turkeys will be greatly simplified.

Last year we whole blood tested our turkey breeding hens. The blood testing of 30,000 turkey hens scattered over an area of 100 miles or more is no small job. We maintain our own blood testing crew of six men augmented by additional hands when necessary. Our crew, when working under convenient handling and weather conditions, can test approximately three to four hundred birds an hour, including culling. We do not leg-band, but at the conclusion of the test, all reactors are removed from the ranch by our crew. Our equipment consists of special turkey traps which are arranged for holding the birds until a reading is made.

### Sanitation Must Be Thorough

Do not feel that you are through the minute you test. Sanitation is very important and that includes the turkey egg ranch, the hatchery, brooder house and premises, and the latter depends upon the man who broods the poults. In our plant all the trays are dipped in a carbolic acid solution before eggs are trayed. Hatchers or hatching compartments are vacuumed and then washed with the same solution. The compartments are further fumigated twice during each hatch by means of permanganate of potash and formaldehyde or other recognized fumigants.

Extreme care is taken in the handling of our poults. That includes grading before shipping, type of box, ventilation of box, packing in box, tying, labeling, and in fact, every operation incident to shipping.

Before the poults start on their journey, the express company or post office has been contacted to ascertain the proper connections and train schedule. The consignee is notified of the schedule and is requested to contact his local agent to make sure that the information we supplied him is correct. It is our practice to notify all consignees just as soon as the eggs are set as to the exact date of shipment and arrival. Sometimes for various reasons it is necessary to change dates at the last minute, in which case the customer is notified by wire.

### Incubating and Brooding Kept Apart

Battery brooders should not be kept in the same room with incubators or in the holding room. By holding room, I mean that room wherein the boxed poults are sorted and kept prior to shipping. If you battery brood to any extent, it is advisable to use a separate building for this purpose. At one of our plants we maintain a separate building where a limited amount of battery brooding is done. The separate building is not possible at our other plant, but a separate room is provided.

At hatching time we remove our poults from the incubator or hatcher as early as possible. We do not wait for the hatch to clean up fully. It is very desirable to get the poults into clean boxes as soon as possible. If you are still using the so-called flat tops, it might not be possible to do that, but with any of the later type machines, it can be done. Contrary to the belief of many, it does not hurt the hatch to open a door and remove a tray or to take off a large portion of the hatch. Present day incubators have a very excellent control of humidity that can be built up to the necessary level for efficient hatching even though the hatcher or hatching compartment is not filled to capacity.

### The Summer Shipping Problem

Our transportation problem is a serious one. From our two plants we can reach any place west of the

Mississippi and even farther. However, the bulk of our turkey hatch is taken off after May 1 and we invariably run into warm weather at this time.

We are hopeful that the Railway Express Agency will find ways and means of cooling the express cars. I believe that inexpensive ice bunkers plus a system of improved ventilation can be installed at a minimum cost and will eliminate all danger of extreme heat in many of our middle western and southern districts.

One thing is sure: the Railway Express Agency and the Post Office Department will have to adopt some means of forcing more and cooler air through the cars. That is especially true in those areas where the weather begins to warm up in May and June. Poults do not seem to stand extreme temperatures. They do not have the "come-back" that chicks have.

In May and June a large portion of our poults, and in fact, those of practically all the larger western shippers, must cross one or more of the western deserts where the heat reaches very dangerous heights. The addition of a few milk cans filled with ice through which air is forced by means of electric fans will assist materially in maintaining a lower temperature. Where no provision is made for cooling, some arrangement should be made for circulating the air. It is hoped, of course, that eventually all cars will be aircooled.

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## *Of Such is the Kingdom*

Do you know who it is who keeps Nebraska's smaller churches going in years of adversity? It's the women.

And much of it is done with fried chicken. Many is the church debt that would lag into months and years overdue, were it not for the never-tiring Ladies' Aid that serves fried chicken at the men's meetings, community gatherings, for the various district conventions, school functions and public sales.

More than a few pastors would be forced to leave their posts and churches close their doors if it were not for the flocks of hens from which donations are made so generously. Chicken suppers can pay for a church carpet, for mending a leaky roof, for new chairs in the junior department; and they can pay off the women's pledge on the pastor's salary like unto a miracle when funds get low.

These church women have their money-making schemes; and somehow they always work. If chicken can't turn the trick, then there's the quilt auction, or the "bake" sale. Cream checks find their way into the treasury, too, along with the egg money.

—Hastings, Neb., Tribune.

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DURING the inspection of a box of 100 White Leghorn chicks at the Lemmen Leghorn Farm, Holland, Mich., three albino chicks were discovered, according to an item in the I. B. C. News. The eyes of the chicks were red instead of black.

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# Long-Time Factors in Turkey Outlook

*Condensed from U. S. D. A. Outlook Report*

THE turkey crop of 1939 of about 31,957,000 birds is estimated to be almost double the size of the crop produced 10 years ago. The present crop is equal to about one bird for every four persons in the United States. This compares with about one bird for every five persons from the big crop of 1936 and with one bird for every seven persons in 1929.

No records exist to show with certainty the production per capita in earlier years. The U. S. Census of June 1, 1890, reported 10,754,000 turkeys on hand. Probably many poults were missed. The number thus reported would be about one bird for every six persons, but a complete enumeration would probably have shown a considerably larger per capita supply.

Between 1910 and 1930 the losses of poults from blackhead became so serious, especially in the more humid areas, that the expense of producing turkeys for market became prohibitive in many sections. Production was greatly reduced during this period in practically all the states east of the Mississippi River and in the first tier of states west of the Mississippi River where rainfall is also normally abundant. Gains were rapid in the Plains States lying farther west and having more limited rainfall. The far Western States increased production greatly.

The total number of turkeys in the humid states and the tier west of the Mississippi River amounted to 73 per cent of the United States total in 1910, but fell to 60 per cent in 1920 and to 32 per cent in 1929. The decrease during this period in the East was only partly balanced by the rapid increase in the West.

With the discovery in 1918 of the cause of blackhead and the development of successful methods for its control, the possibility of renewed successful production of turkeys in the Eastern States was demonstrated. But these improved methods came into use slowly and the number of turkeys continued to decrease in the United States until they reached the low point in 1927 of approximately 14,800,000 birds. This was equivalent to only about one turkey for every eight persons.

### Trend Toward Large Flocks

Turkey production in large flocks had long been practiced in many parts of the West, because of the advantages large flocks possess in the matter of management and marketing, aside from the problems of disease control. In the humid Eastern States, where production in small farm flocks had been largely discontinued because of the extreme losses of poults, it was now found both possible and profitable to produce turkeys if they were grown in large flocks so they could be kept separate from other poultry and handled under improved methods of brooding, feeding, and sanitation. Such flocks have gradually grown in number and size in the North Central and Eastern States and are now extending into the South. The principal increase in turkey production during the last decade has come from these large flocks, numbering from a few hundred birds up to several thousand each.

"The Outlook for Poultry and Eggs (Including Turkeys) for 1940," issued Nov. 10, 1939, by the U. S. Bureau of Agricultural Economics, Washington, D. C.

The proportion of the total crop produced east of the Mississippi River and in the first tier of humid states lying west of that river is now about 47 per cent of the United States total compared with only 32 per cent in 1929.

### Influence of Small Flocks

While numbers of turkeys have been increasing, the number of small farm flocks has continued to decrease in most of that area, but this year there is a definite increase in the number of flocks of all sizes in practically all areas. This increase was particularly marked in the West North Central States where a similar, though less pronounced, increase in number of producers occurred last year also. In Texas and throughout most of the South, the small farm flock of turkeys, numbering less than 100 birds and often only a dozen or two and generally handled in conjunction with chickens, is still the prevailing type. Considerable numbers of turkeys are still produced in such flocks in a number of Northern and Western States, particularly in North Dakota.

Many general farmers who produce their own grain still raise a small flock of turkeys as a side line and will probably continue to do so. Most of these producers allow their turkeys to roam and forage for seed and insects. Many of them feed little or nothing from the bin and give the birds relatively little attention after the poults have passed the early period of severe losses. In sections where losses of poults under such conditions are particularly great, most of these small producers have been eliminated, but in other sections large numbers of such turkey farmers continue to operate.

### Advantages of Various Areas

In the competition between different sections in large-scale production, each has its relative advantages and handicaps. Broadly speaking, the most important of these are: on the one hand, cheap feed and relatively low operating costs and equipment, but with the handicap of distant markets; and, on the other, higher costs for feed, equipment, and operation, but with nearby large markets and higher prices for local products. These differences may be less important in many cases than the element of personal management, but in the long run may result in definite shifts in future production between the different geographic areas.

The advantages of different types of birds continue to be a matter of debate. Demands for smaller birds for family use and large birds for hotels and restaurants appear to provide outlets for different types.

### Influence of Hatchery Production

The rapid recovery in numbers of turkeys during recent years and the great increase in the number of large flocks have been made possible partly through the development of large-scale hatchery production of turkey poults. Although exact percentages are not known, hatcheries now provide a large proportion of all poults raised.

Hatchery poults offer several advantages to growers of turkeys, such as large numbers available for expansion of flocks, early poults, and uniform age and size. They provide at least the possibility of rapid improvement in the average type of bird raised. All of these are factors that facilitate successful marketing of the birds when raised.

Supplemental to the development of this branch of the hatchery industry has been the related development of large flocks of improved strains of egg-laying turkeys which not only lay more eggs, but begin to lay much earlier. This development has been particularly marked in California and to a lesser extent in Texas.

In addition to the eggs from these important centers of supply, northern hatcheries have obtained considerable quantities of eggs from other southern and border states. At present there appears to be a strong movement in the North to produce locally more of its needed supply of turkey eggs. Many large flocks of breeding birds are being established there for that purpose.

In view of the rapid increase in turkey production during the last few years, it is difficult to determine what future production trends will be. An important factor in this problem, particularly as it applies to the restaurant demand, is the relative price of turkeys and other meats. The reduction in the cost of producing turkey meat, accomplished through improvement in type of bird and methods of growing and feeding, is placing turkeys more fully in competition with other meats and leading to greatly increased consumption of turkeys outside of the holiday season. The extent to which this trend continues will be an important factor affecting the future demand for turkeys.

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## *Mortality Increased by Marketing Methods*

If the poultry raiser will travel the eastern highways, he will see many large auto trucks hauling hundreds of poultry to market in so-called market crates.

Heavy mortality never will be reduced until laws are made and lived up to in each state, which will cause the poultry collector or huckster to clean his crates and other equipment in which poultry is handled. Why should these collectors be allowed to drive from farm to farm, loaded with dirty crates, later to unload these crates at each farm?

All crates should be thoroughly cleaned and disinfected and an inspector's tag placed on each crate to show that the crate has been inspected by a state inspector and made safe to be carried around the countryside.

The huckster should be required to park his truck in front of each farm and not allowed to drive on the farm. Auto tires carry germs.

If poultry are shipped in dirty crates by rail, baby chicks have a good chance to become infected if chick boxes are placed near insanitary crates.

—A. Lawrence Dean in Poultry Tribune, Dec. 1939.

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¶¶ A RHODE ISLAND RED pullet belonging to James Truitt, Laurel, Delaware, which began to lay in October this year, produces a triple-yolked egg every third day, according to her owner.
—Newspaper Article.

## *Maintain Identity of Your Eggs in Marketing*

Until such time as better and more efficient ways are developed for determining interior quality by some means like candling, the advantage of maintaining the identity of the producer or association should not be overlooked.

Eggs which would carry a certain official grade from one producer may be quite superior in terms of satisfaction to the consumer as compared with eggs which would carry the same official grade from another producer. This is just another way of saying that with our present technique of candling we are not able to tell for a certainty about the interior quality until the eggs are broken out in the housewife's kitchen, or soft boiled or hard boiled, or however prepared for consumption. Candling, of course, fails completely to evaluate the egg for the housewife in terms of flavor or taste. Identification of producer or association does provide this advantage.

This should in no wise be considered as criticism of our present candling technique or grading laws or regulations. On the contrary, I feel that considerable progress has been made in egg grades, and that proper egg grades are very beneficial. At the same time it is all too apparent that there are certain qualities of the eggs which cannot be determined by candling. This brings us back to the thought that it is necessary and advantageous to maintain identity of the producer or of the association so that a producer who is feeding properly and handling the eggs properly should get the benefit which otherwise would be lost if his eggs are passed along just as eggs are bought by the housewife strictly on grade.

There is ample evidence of the soundness of this idea. At many of the eastern egg auctions, cases carrying the same State grade, but identified as to producer will consistently return more money to certain producers. We see the same principle at work in the New York market every day. Certain shippers whose eggs may grade officially the same as other shippers' will consistently get more money. Why? Because there are certain qualities that cannot be determined by candling, but which have very real market values.

—**H. E. Shackelton, San Diego Poultry Journal.**

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## *Egg Buffer With Sponge Rubber Backing*

R. C. Wolf, Fontana (Calif.) poultryman, showed us an interesting gadget, a new wrinkle in making an egg shell buffer. Instead of wrapping abrasive cloth strips around a felt eraser or a block of wood with felt backing, he secured a sponge rubber kneeling pad at the local hardware store and cut it into convenient sizes. One pad at 25 cents furnished enough material for eight egg buffers. The pads are ½-inch thick. Wolf said he made one of these and tried it on a case of eggs, threw it away in disgust. Then after he had used his other buffer for a while, he picked up the sponge rubber buffer again and has been using it ever since. Easier on the hands, resiliant, bends to fit the eggs. Another advantage: if dropped into a pail of eggs none will be broken.

—**Pacific Rural Press, Nov. 18, 1939.**

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# Deep Litter Management

By Carl O. Dossin

**Pennsylvania State College**

***Excerpt from Everybodys Poultry Magazine***

MANY poultrymen have found a solution to the damp litter problem through a change in litter management, provided, of course, that the birds are not crowded, and ordinary precautions are taken to prevent spillage of water and to keep out water from outside. They are putting a small amount of litter in the pens in the early fall months when the houses are prepared for the pullets. When this litter is broken up, additional litter is added rather than to clean the pens.

This system will not work unless started in the late summer or early fall months, so that a layer of finely broken litter several inches deep is built up before cold weather and the damp litter season arrives. Let me suggest that you add a little fresh litter rather than change your litter if your house is now dry and if you have had a dampness problem other winters.

As mentioned previously, warm air carries more moisture than cold air. Therefore, when cold air contacts warm air in the house, it chills it and causes the moisture to condense and settle to the floor on the litter. If the litter is fine and dense, it serves as insulation and only the top layer of litter gets damp from this condensation of moisture. If the litter is loose like fresh straw, the condensed moisture can settle to the floor and all the litter becomes wet.

A thick layer of finely broken litter can serve as insulation to prevent the cold air from the floor from contacting the warmer air in the pen. This is particularly effective when board floors are used in houses on posts. The cold air blowing under the houses chills the floor and, as a result, chills the air in the pen unless a deep, finely broken litter is used.

### Litter Should be Stirred

When the deep litter method is used, some scratch grain should be scattered in the litter. If the grain is not fed in this manner to encourage the birds to scratch, then the poultryman should stir the litter occasionally. The litter does not get as dirty as one might expect, for the finely broken material and the dried droppings work to the floor. Then, too, from time to time, fresh litter is added to the pen, as the chickens break it up and mix it with the fine litter.

If the litter near the drinking fountains and the front of the house becomes damp, it should be replaced by finely broken material from other sections of the pen. By removing the damp litter from these areas, one will prevent the litter from getting too deep in the pen. Poultrymen who have followed the deep litter program have prevented it from getting more than 6 inches deep. The litter is usually left in the pen from early fall until the weather becomes pleasant in the spring.

Deep litter management has several advantages: namely, a drier house; saving in cost of litter; saving in cost of labor for changing litter; warmer houses; and fewer soiled eggs.

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(Everybodys Poultry Magazine, November, 1939)

## *Early Pullets Profitable in Spite of Molt*

Frequently early hatched pullets go through a partial molt during the fall or winter months, and the owner sometimes wonders if there is a satisfactory net profit from such a group of early pullets. Records on a flock of January hatched pullets, trapnested at the State Institute of Applied Agriculture, Farmingdale, L. I., indicate that such pullets are valuable in spite of a molt.

In the group studied, production began late in June, and the average time in production before molting was 72 days; eggs laid, 43. This average of 3½ dozen eggs per bird, better than 50 per cent, during the 10 weeks from the first of July to the middle of September, was certainly worthwhile. Especially in a consuming area, with active summer trade, it is important to have eggs on hand, and there is no difficulty in disposing of small eggs.

These pullets had no egg production pedigree behind them, and were selected simply for general health and vigor from among the early-hatched birds. Only 5 per cent of the group continued in laying condition, with no molt, during the period from July until February. The average time lost from production was 62 days. There always was some production from the pen, however, and during the months when the old hens were completely out of production, a proportion of these pullets were laying. The shortest time out when actual molting was observed was 25 days.

An interesting observation was that while 90 per cent of the pullets failed to lay 24 ounce eggs before the fall molt, 95 per cent of them averaged 24 ounce eggs during the first month after the molt. Although these birds had no particular production pedigree breeding, yet several of them laid over 200 eggs, in spite of a fall molt. One individual took out 84 days, yet made an annual record of 204 eggs.

Production of early hatched pullets during the second summer and fall does not appear to be conditioned by the hatching date, and will be similar to that of pullets hatched at the normal season.

—Poultry Tribune, Dec. 1939.

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EXHIBITED at the recent Cape Town Poultry Club Show in South Africa, according to the South African Poultry, Pigeon and Bird Magazine for August, 1939, was a freak four-footed cock bird produced from a double-yolked egg, which was shown "as an object lesson against incubating double-yolked eggs."

WHEN Mrs. Herman Schmidt, of Archer, Neb., recently went out to check up on a new hatching of young turkeys, she found the family cat mothering five baby poults and the turkey hen in her nest, surrounded by the tumbling progeny of the cat.

HARRY KLONE of Latonia, Ky., is owner of probably the strangest "tree" in the United States. The "tree" is 4 feet tall, and is made entirely of chicken and turkey wishbones . . . over a thousand of them. "Just a hobby of mine," says Klone proudly.

—Poultry Tribune, November, 1939.

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# Causes of Crooked Breast Bones

By R. T. Parkhurst

Massachusetts State College

*Reprinted from Featheredfax*

Crooked breasts apparently may be due to one or more factors. There is considerable evidence to indicate that inheritance plays an important part in the tendency towards this defect. In vitamin D deficiency studies with chickens and fowl, the writer has found marked differences in the birds on the same rations and under similar management. Some birds do not show any deformity after many months on the same feed, and under the same conditions that other birds succumb in two or three months. It has been proven that, in most birds, the keel becomes deformed if the ration is deficient in vitamin D. Even in the presence of plenty of vitamin D, the ration needs to have the proper amount of calcium and phosphorus. Fortunately, manufacturers of most commercial rations realize the necessity of supplying the necessary quantity of vitamin D and the proper amounts of calcium and phosphorus. The minimum vitamin D content of the chick ration should be 40, and for laying hens 80 units A.O.A.C. chick units per 100 grams of feed. This means approximately ½ and 1 per cent respectively of an 85 unit cod liver oil or 1-10 or 2-10 of 1 per cent of a 400 unit fortified cod liver oil. The approximate optimum levels for calcium and phosphorus in the chicken and laying rations are 1.5 per cent for calcium and 0.8 per cent for phosphorus. This does not include self-fed oyster shell or limestone grit for laying hens. According to research workers at Kansas State College, the keel deformity is probably due to an insufficiency of mineral deposition in one portion of the skeleton rather than a generalized deficiency in the bird's metabolism.

The type of perch used, the age at which the young chickens perch, and probably the time spent on the perches are "mechanical" factors involved along with breeding and nutrition. Although early roosting discourages crowding, there is probably an increase in injured breasts in chickens of strains showing the crooked keel tendency, that roost before twelve weeks of age, especially on roosts that are less than two inches in width.

Because of their higher vitamin D and mineral requirements, turkeys are even more prone to develop crooked breasts than chickens. Four-inch roosts are probably better for them than those two inches wide.

Poultry raisers having any losses due to crooked keels should consider their management practices first, the possibility of the breeding stock being at fault and then the ration. Why? First, it pays to check up on oneself before blaming the other fellow and second, Kansas State College found that, under normal roosting and nutritional conditions, the crooked keel strain would show an increase of 60 to 80 per cent crooked keels and the straight keeled strain an incidence of less than 10 per cent.

# What Affects Profits?

By G. T. Klein
Massachusetts State College

*Condensed from American Poultry Journal*

A SURVEY of 114 poultry farms in Massachusetts in 1937 indicates that a breeding business—selling hatching eggs and baby chicks—is the most profitable type of poultry enterprise. To the surprise of many, the labor incomes from the wholesale farms averaged higher than from the retail farms. Particular attention was given to the study of egg production, size of business, labor efficiency, and the efficiency in the use of capital invested in the business. The farms were classified into groups of 71 wholesale, 34 retail, and 9 breedings farms.

The more important reasons for low incomes on some of the farms were.

1. The unfavorable feed-egg ratio of 1937.
2. Inefficient use of labor.
3. Low egg production.
4. Lack of diversity on some farms.
5. Small size of business indicated by small flocks.
6. Buildings and equipment not used to capacity throughout the year.

Lack of diversity is likely to show up to a disadvantage when the price relationships are unfavorable. When prices are favorable, a specialized business will make more money.

### Breeding Farms Led

In the accompanying table, poultry sales refer to the total receipts from eggs, fowls, broilers, pullets, and chicks divided by the average number of birds. Cash return is the difference between total cash receipts and total cash expenses. Farm income is the cash return adjusted for changes in inventory and value of family labor. Labor income is determined by subtracting 5 per cent interest on mortgage-free investment from the farm income.

Farms were classified as breeding farms if 50 per cent or more of the income came from the sale of chicks, hatching eggs, or breeding birds. Similarly, farms were classified as retail farms if 50 per cent of the increase came from the sale of eggs and poultry at retail. Farms not falling in these classifications were listed as wholesale.

The breeding farms were largest, and had the highest egg production and the highest labor income. The number of birds per man was low because of the time spent on the baby chick business, but sales per man were highest. Investment per bird was highest, chiefly because of a higher value per bird and the extra equipment needed for this type of business. Egg prices were lowest because only small eggs were sold on the market, while the first quality eggs were incubated or sold as hatching eggs.

### Higher Investment Per Bird

It was somewhat of a surprise to find that the retail farms had the lowest labor income. There are several reasons why this seemed to be true: (1) size of flocks was smallest and egg production was lowest; (2) the labor efficiency was low, as shown by the number of birds per man and the labor cost per bird; (3) the time spent in delivering eggs on retail routes or other outlets was charged to the farm business, and this probably resulted in less supervision and management of feeding and care of the flock. This probably was the reason for the lower production.

The retail farms had a higher investment per bird, which meant higher taxes and interest charges. The unfavorable feed-egg ratio of 1937 worked to the disadvantage of the retailer because in this class a greater percentage of the income must come from market eggs. The retail farmer was more affected in 1937 than the wholesaler or breeding farm which had a more diversified business.

### Differences in Income

The analysis of the business of farms located in areas surrounded by large cities where retailing can be carried on most advantageously showed higher incomes than the average of the retail farms. Retailing is looked upon with favor if properly conducted, and this study should point out the need for carefully watching all details rather than to condemn the method.

The wholesale farms averaged higher than the retail farms in all favorable factors except in "Per cent Sales of Investment." Larger size, more efficiency, higher egg production, and lower investment per bird were important factors in causing these farms to show a higher labor income than the retail farms.

On the breeding farms, the egg production per bird, size of flock, and the total capital investment were much greater than for the other types of farms. The number of birds cared for per man was lower, as much of the time was spent on the hatching egg and baby chick business.

The labor income ranged up to $6,022 on the breeding farms. The most profitable farms were larger than the others in capital investment, number of birds, chick sales, egg sales, and total receipts. Egg produc-

## Comparative Efficiency on Poultry Farms

| Measures | Wholesale Farms | Retail Farms | Breeding Farms |
|---|---|---|---|
| Number of Farms | 71. | 34. | 9. |
| Size of Business | | | |
| Number of Men | 1.8 | 1.8 | 4.1 |
| Number of Laying Birds | 1,207. | 942. | 1,860. |
| Dozens of Market Eggs Sold | 15,835. | 13,636. | 17,674. |
| Capital Invested (include dwelling) | $11,631. | $9,791. | $23,788. |
| Labor Efficiency | | | |
| Number of Birds per Man | 681. | 519. | 456. |
| Labor Cost per Bird | $1.35 | $1.81 | $2.32 |
| Cash Receipts per Man | $4,883. | $4,226. | $4,954. |
| Efficiency in Investment | | | |
| Capital Invested per Bird | $9.64 | $10.39 | $12.80 |
| Per cent Sales are of Investment | 74. | 78. | 85. |
| Eggs Produced per Bird | 174. | 161. | 195. |
| Average Egg Price per Dozen (cents) | 30.6 | 37.0 | 23.6 |
| Poultry Sales per Bird | $6.97 | $7.90 | $10.50 |
| Cash Return per Farm | $1,235. | $972. | $2,835. |
| Cash Return per Bird | $1.02 | $1.03 | $1.52 |
| Farm Income per Farm | $1,625. | $1,104. | $3,322. |
| Farm Income per Bird | $1.35 | $1.17 | $1.79 |
| Labor Income per Farm | $1,130. | $681. | $2,336. |
| Labor Income per Bird | $0.94 | $0.72 | $1.26 |

American Poultry Journal, 536 So. Clark St., Chicago, Ill.
(American Poultry Journal, Dec. 1939)

tion was high, and labor efficiency was good.

The average investment in all farms in Massachusetts was $12,042. This was $7.76 on each bird housed and $10.21 on the average number of birds kept; 17 per cent of the investment was in the laying flock, 10 per cent in machinery and equipment, and 70 per cent in land and buildings. The dwelling was included in the 70 per cent and represented 31.3 per cent of the total investment. The average investment in the home was about $3,800. Had the dwelling not been included in the capital invested, the labor incomes would have been about $190 greater.

There was much diversification on all types of the farms. On 37 of the wholesale farms, some eggs were sold at retail. Baby chicks were sold on 36 wholesale farms and on 10 retail farms; 10 of the retail farms and 17 wholesale farms reported crop sales and had a higher income than the average. Diversification seems to be rather important in the poultry industry in Massachusetts.

Each man's problems are his own, and while the method of management may vary on individual farms within these various groupings above or below the averages given, the profit figures are significant as to what might be expected in this section under conditions similar to those at the time the survey was made.

## Roast Broiler

A restaurant proprietor in the Jersey capitol city told me he has found 1¼ pound broilers served as individual roasted chickens very popular with his patrons. A whole, stuffed bird on the plate, filling and all, certainly looks good. I really enjoyed mine and I found that of 283 dinners served at this eating place the previous Sunday, over 100 were the individual roasted chickens.

—The Old Poultryman in The Poultryman, Nov. 24, 1939.

«« PRACTICALLY everyone who kept poultry in the last war tells me there was never a real famine in feeding stuffs—at any rate for owners of small flocks. If you knew a farmer, you could always induce him to set aside a bag of wheat which the millers would turn down. He had only to leave it out in the rain for the night—quite by accident, of course—and he could get a certificate to sell it for poultry food. And don't forget that farmers could get higher prices for spoiled wheat from poultry keepers than they could for unspoiled wheat from the millers!

—From "Without Fear or Favour" in Eggs, London, England, Sept. 27, 1939.

«« WHEN a White Leghorn hen laid three eggs in a pheasant's nest on the T. T. Williams farm, near Eaton Rapids, Michigan, the game bird hatched and adopted the chicks as part of her brood and refused to give them up until partly grown.

—The Poultryman, October 6, 1939.

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*New Jersey Experiences*
*in Consumer Education and*

# Selling State Certified Fresh Eggs

By Leon Todd

N. J. Department of Agriculture

*Condensed from a Talk*

NEW JERSEY'S State Certified Fresh Egg plan was started because of a desire on the part of producers to identify their product through the channels of trade to the consumer. They were also anxious to identify their eggs as fresh in order to develop further the good work which the fresh egg law has accomplished.

The first job was to raise some money. This was done by direct mail solicitation among the poultrymen, and a net amount of $1,100 was raised. Frankly, this is not enough for starting a promotional and advertising program. When I think of the thousands of dollars spent to introduce a new product even in a small territory, I still wonder how we came through so that today we have a satisfactory surplus in the treasury.

### Eggs Obtained from Auctions

Let's follow the plan for handling the eggs. All of the eggs are purchased at the auction markets by the regular house buyers, and are brought to the Flemington Market where they are candled and placed into the carton. The candling is done in a careful way and an attempt is even made to keep the lighter yolks in one carton, and the darker yolks in another carton so that the consumer will be assured of uniform colored yolks. The carton is sealed with a State Department of Agriculture label, thus identifying the product to the consumer. Both 15 and 30-dozen containers are used, with a preference for the 15-dozen cardboard boxes.

The eggs are then delivered in a truck which has been especially painted for this program and which, incidentally, has been one of the most effective advertising investments we have made. The eggs are delivered to retailers only, and may I point out that this is definitely a more expensive procedure. Even with the chain store groups, the eggs are being delivered to each individual store. We tried warehouse deliveries with the chain groups, but this procedure did not sell any more eggs and, therefore, was discontinued.

### Salesman Employed

A full time man is employed for the purpose of taking orders and also soliciting new accounts. This man holds a most responsible position from the standpoint of the success of the program, and he must be a good salesman. Frankly, we tried some men who did not have a sufficient amount of experience in selling to retailers and the results were in accordance with their experience. Any state which is thinking about such a program should, by all means, employ an outstanding salesman.

The price of these eggs is largely in

Presented at 3rd Annual Business Management Conference of the Northeastern Federation of Egg and Poultry Cooperatives, State College, Pa., Aug. 31 and Sept. 1, 1939 the hands of the producers. It is determined by taking the weighted average price paid for the eggs on the auction sales. To this is added the cost of the services which includes the cost of the carton, candling, delivery, office, salesman, and a small amount for advertising. The minimum amount of profit to be had by anyone is suggested, and was started at 8 cents a dozen. After several complaints which seemed to be well founded, it was suggested that 5 cents be the minimum profit. This still does not satisfy some of the retail groups; however, I do not anticipate that any change will be made soon. Our people are putting out a top quality egg and, therefore, do not want it sold at a low cost as it would set an undesirable precedent for themselves as well as for others who are selling eggs in the community where these eggs are on sale.

A great deal of advertising has been done in New Jersey as a result of this material displayed here. The point-of-sale material includes decalcomanias, counter display cards, window streamers, recipe leaflets, etc. In addition, we put out an Easter Special which attracted a great deal of attention. There were approximately 1,500 cases of these eggs sold during the 10-day period previous to Easter.

### Types of Advertising

The newspaper advertising has been extensive in view of the fact that some excellent help was obtained from the New Jersey Council. Otherwise our newspaper advertising would necessarily have been much less. Some of our people are definitely of the opinion, however, that the point-of-sale advertising material is more effective when only a limited budget is available for newspaper advertising. This is a question which the advertising agencies must answer after a systematic analysis of the results. I believe this question is vital to the industry throughout the country inasmuch as we hear a great deal about advertising campaigns for eggs and poultry meat.

Here, again, I raise the question as to who has the facts on how it will be most effective to tell the consuming public about our poultry products. I raise this question also because it would be very easy for the industry to spend several thousands of dollars and not be sure that it had obtained any good from it. I feel too, that we are justified in taking this attitude since it is the poultrymen's own money which is being spent.

Concerning the progress which we have made, we started with 80 cases the first week. The volume is averaging about 250 cases per week at the present time. We have some contacts which should give us new and important outlets in the near future. The volume could be much larger than this except for certain policies which have been carried out. If the eggs were delivered to central warehouses, the volume would probably increase. The suggestion of a minimum profit has unquestionably kept down the volume, especially since some of the retail groups object to this policy.

An effort is being made to increase the volume as we are expecting to sell a large quantity of eggs at the auctions during the next year. A total of 15,254 cases has been sold through this program since February 4, 1938. During the fall and early winter months when the price of large eggs is highest, we have been concentrating on a medium egg. This proved to be satisfactory last year and will be used again this year. This policy works well inasmuch as the price on medium eggs becomes stationary or starts to

decline at the time when large eggs reach their peak price.

Probably the most important result of this program to date is the fact that the New Jersey egg producer has become much more conscious of egg merchandising problems, both from his own standpoint and from the standpoint of the retailer. The Egg Marketing Committee appointed by the State Poultry Association, started the program; however, the committee has been dismissed in favor of a state-wide organization of the cooperatives known as the New Jersey Poultry and Egg Cooperative Marketing Association. It is important that this organization exist for the purpose of formulating definite policies for the distribution of eggs, and possibly, dressed poultry later.

### Carton Identifies Nearby Product

After the experience which we have gone through on this program, it is possible to conclude that identification of a nearby product is sound. The system to be used depends upon local conditions; however, the use of a carton seems best in most cases. The experiment which has been going on in New Jersey is giving us the answers to several important questions relative to our local distribution. We are not sure that the store-to-store delivery with only one product in the truck, namely, eggs, is the most practical in the long run. The suggestion of a minimum profit has definitely retarded the sale of the eggs so far as the retail efforts are concerned, however, it seems wise at the present time to maintain a reasonable price for the eggs.

Any promotional work on the part of any state must be considered carefully and put into operation only after the soundest available advice has been obtained. I do not approve of the idea of spending large sums of money for advertising without knowing something about the results which can be expected, and also, a small amount of advertising may be no more effective than none at all. It is my firm conviction that a good salesman comes first, and advertising material second.

IT'S NOT OFTEN a rooster takes his domestic responsibilities seriously, but Mrs. Lucy Bugiel of Glastonbury, Conn., has one with a real mothering instinct. When one of her hens died, leaving a dozen orphaned chicks, the rooster insisted upon taking care of the brood, hovering over them while they fed and slept and indignantly chasing away intruders.
—Newspaper Article.

GRAHAM DALE, a New York artist, specializes not in "cartoons" but in "Egg-a-toons." He paints caricatures of famous people on egg-shells, and does an excellent business.
—Poultry Tribune, September, 1939.

AT THE English National Laying Test at Milford, a White Leghorn accidentally broke its leg. The leg was carefully set, and the bird continued laying.
—The Australasian Poultry World, Sept. 1, 1939.

# POULTRY RESEARCH

## Proper Nutrition Reduces Parasite Infection

The University of Hawaii calls attention to the fact that nutrition plays an important part in the control of certain parasites. Chicks at the age of 5 weeks were fed approximately 1,000 embryonated eggs of Ascaridae gulli.

The check pen was fed a basal ration containing no protein concentrate of either animal or vegetable origin. One pen was fed the same basal to which vegetable protein concentrates consisting of a mixture of soybean and sesame meal were added, while the other pens received dried skim milk or sardine meal as a supplement. An examination of the chickens after a 6-week feeding period revealed on autopsy that the number of parasites was much higher (4-5 times) in the check pen and lowest in the pens fed the protein concentrates from animal source.

The experiment demonstrates the importance of an adequate diet in reducing and maintaining the health of poultry.

—H. L. Kempster, American Poultry Journal, Dec. 1939.

## Production and Mortality

The increase in mortality in laying flocks is popularly ascribed to heavy egg production, but I. M. Lerner, Lewis W. Taylor and R. E. Lubbehusen, University of California, reporting in Poultry Science for November, 1939 (Vol. 18, No. 6), found the relationship between winter egg production and subsequent mortality negative.

Within each sire's progeny, the birds with lower production during the winter up to March are more likely to die from any cause between March and September than those birds with the higher records. From the standpoint of families, however, it does not necessarily hold true that families with low winter egg production records will have higher mortality than families with higher records of production.

## Protein Requirements of Growing Chicks

How much protein do growing chicks need? This question is still frequently discussed, especially with regard to the effect of protein intake upon age at first egg. An answer to this question can, of course, not be given in absolute terms since the optimal quantity of protein is influenced to some extent by the quality of the protein. In some quarters the conception still exists that comparatively low protein levels appreciably retard age at first egg and that comparatively high protein levels speed up sexual maturity.

Carver and co-workers at the Washington State College shed some further light on this subject (Proceedings of Seventh World's Poultry Congress). Using rations containing 13, 15, 17 and 19 per cent protein, they confirm the already well established fact that the pullets on the higher protein levels came into production only "a few days earlier than those fed the lower protein levels." It should be noted that when mash and grains are both fed, all they can eat of either, the pullets will automatically decrease their protein intake with increasing age. At time of sexual maturity the voluntary mash and grain consumption usually represents a protein intake of 13 per cent. Thus, there is no reason to worry about high protein intake with this feeding method.

—Carl H. Schroeder, Everybodys Poultry Magazine, Dec. 1939.

## Mortality Resulting from Non-Specific Diseases

Non-specific disease conditions are injuries to the anatomical conditions which can not be attributed to any known agent or which can not be classified as a known disease. These non-identifiable conditions, according to J. R. Beach, University of California, were responsible for about 60 per cent of the mortality and 60 per cent of the culls in the college flock. One-third of the birds culled because of unsatisfactory egg production were afflicted with conditions from which recovery was improbable and which should be considered as responsible for making the birds poor producers. Thus, these non-identified or non-specific diseases affect both health as well as production.

Enteritis, that is, inflammation of the intestinal tract, was found to be of particular importance; so were degeneration of the liver and derangement of the kidneys, characterized by swelling and paleness; involvements of the reproductive system, especially ruptured yolks, peritonitis, intra-abdominal eggs.

The data (Proceedings of Seventh World's Poultry Congress) is especially interesting because it includes a large number of apparently healthy surplus birds for which there was no room or use in breeding or feeding experiments and which were sacrificed for the purpose of this study. Probably some of the conditions considered non-specific may some day be found to be phases of the paralysis or leucosis complex. At least that is this writer's suspicion, based upon circumstantial evidence, very circumstantial at that.

Dr. Beach's appraisal of the incidence of these as yet unclassified conditions is of greatest value because it exposes the extent of our ignorance and will stimulate research not only in the field of pathology and bacteriology, but, it is hoped, in other branches of biological sciences.

—Carl H. Schroeder, Everybodys Poultry Magazine, Dec. 1939.

## Resistance to Pullorum Desease

Resistance to pullorum disease is influenced by the number of certain white cells, so-called lymphocytes, in the blood of the chick. In resistant chicks the number of these blood cells is greater. Regardless of the degree of resistance, with increasing age the number of these cells increases, which explains the phenomenon that older birds are more resistant against some diseases, a phenomenon usually referred to as the "age factor of resistance." Exposure to X-ray decreased the number of these protective blood cells and, consequently, also the resistance. The chick's ancestors determine the number of the blood cells, hence the possibility of breeding for disease resistance. These observations (Proceedings of Seventh World's Poultry Congress) by Drs. E. Roberts, L. E. Card and J. M. Severens of the

University of Illinois are in accord with similar conclusions by Dr. Jas. T. Culbertson of Columbia University.

—Carl H. Schroeder, Everybodys Poultry Magazine, Dec. 1939.

## Avian Semen Collector

The equipment for collecting semen from male birds in connection with artificial insemination is described by Jesse E. Parker, University of Missouri, in Poultry Science for November, 1939 (Vol. 18, No. 6).

## Domestic Fowls as Hosts of the Poultry Gapeworm

The guinea fowl, the young chicken and the turkey were found to be important hosts of the gapeworm, according to tests conducted by Everett E. Wehr, U. S. Department of Agriculture, and described in Poultry Science for November, 1939 (Vol. 18, No. 6). The domestic pigeon and the duck, however, were found unsuitable hosts for poultry gapeworm.

Chickens infected when very young may retain the gapeworm infection for as long as 147 days, guinea fowls for 98 days, and turkeys for 224 days.

## Fishy Flavor in Ducks

Fishy flavor in ducks can be eliminated in a relatively short time by a change in the ration, according to James C. Fritz, Wallace Archer and Donald Barker of the Elgin Research Laboratories, reporting in Poultry Science for November, 1939 (Vol. 18, No. 6).

A very pronounced fishy odor was noticeable in cooking ducks which had been on a ration containing 6 per cent fish meal and 2 per cent cod liver oil. By changing the finishing ration so as to contain 85 per cent cereal grains, 10 per cent meat scrap, and 5 per cent lactoflavin supplement, no fishy odor or taste was noticeable in the ducks that had been prepared for the table after having been on this diet for only six days.

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COUNTY AGENT BABBITT reports that ten tons of hops for use as litter are coming into Hunterdon County, N. J. Hunterdon poultrymen are planning to utilize them, and they promise to become a factor which New Jersey poultrymen will hear more about during the coming year.

—New Jersey Farm and Garden, July, 1939.

BIRDS on the farm of J. R. Bond, Derbyshire, England, seem to know by instinct that needles of the yew hedges, which border part of the farm, are poisonous if they eat them. Thus they do not eat the needles, but do eat the berries or seeds of the yew, and show no ill effects, according to Feathered World.

THERE are certain parts of Lancashire (England) where the dirty egg is in demand. Hundreds of housewives still believe that no egg can be "new-laid" unless it bears the impression of the nest with a few stains and a bit of dirt. Sounds peculiar, of course, but there is logic in it. Every imported egg is packed clean, so they cannot be "bitten" if they buy dirty eggs.

—Eggs, London, England.

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# Diary of a Poultryman

By P. S. White

Egg Farmer, Wayne County, Ohio

*Condensed from Everybodys Poultry Magazine*

**Dec. 2**—The volume of eggs on the Auction sales is gradually increasing. The next thing we know it will be necessary to build an addition to the institution. I always try to get the eggs in early as possible on receiving days, but I was late today. It looked so much like rain this morning that I thought I had better not make the trip. But I got them in this afternoon with corn and oats as a return load.

**Dec. 3**—For the last few days we have been having an epidemic of trouble with the electric light sockets. First, there was one in the block house, then on the third floor and today the one directly over the water fountain on the first floor of the barn. It seems that they shake inside, and perhaps they light, and perhaps they don't. The best way out is simply to replace them with new ones. It is cheaper in the long run. I made it a rule years ago to have a few extra electric fixtures, pipe fittings, nails, bolts and screws available at all times. Often times it saves a trip to town and gasoline still costs money.

**Dec. 6**—Today we started cleaning the brooder houses for a fare-ye-well. The litter was removed several weeks ago, but that was only the beginning, only the beginning. The real cleaning is sweeping the ceiling and walls, scraping the floor and cleaning the windows. Then last, but by no means least, is a good painting with creosote and kerosene, with the floors soaked with crank case oil.

It is a nice clean smell if one likes the smell of creosote. I don't mind the smell of it, but Kid White says she doesn't like the odor all through the house. It is just a wee bit odoriferous for her. After this treatment the houses will stand idle until the last week in April, when a new crop of chicks is started. A clean, disinfected house, standing idle throughout the winter, is a good way to keep down disease next spring. It is a regular policy on the ranch, has been for years.

**Dec. 8**—It took most of the day to get caught up with the egg packing. Last night Verne Chamberlin was over and we just whiled away the time installing a water pump and fixtures in the new dwelling. One of the requirements of a chicken man is to be able to do any kind of work, carpenter, electrical, plumbing, concrete, painting, etc. And when two chicken men get together, there is very little work left that they won't be able to do.

Pullet egg size is on the increase. Today there were no pee-wees (under 18 oz. per doz.) and only about a hatful of pullet eggs or those weighing between 18 and 20 oz. to the dozen. The number of border-line eggs, 23 oz., is rather striking. This size is the maximum for "mediums" and the minimum for "large." One has to use discretion when packing.

**Dec. 10**—Not much cold weather so far this year. Production from the

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(Everybodys Poultry Magazine, December, 1939)

pullets is on the up and up; from old hens, it is on the down and down. And so the wheels of the industry turn, grinding out the bitter with the sweet. Egg prices are holding quite steady, but there is a time coming when they will leave a bitter taste in the memory.

**Dec. 12**—No painters on the job in the new dwelling. Kid White and I have already invited the auction employees, their wives and their sweethearts to participate in a big, get-together jamboree house-warming. We had hoped to have this party before the holidays, but if the painters don't soon get started, it will be impossible to do so.

Harold set up one of the tin can, oil burning brooder stoves in the bended-bow rafter brooder houses and started cleaning the range hoppers and water stands. He can work on them only at odd times. A wire brush and a scraper are used to clean them. Then they are given a good coat of hot creosote. This equipment has been in use for 10 years and is still in good condition. A stitch in time—is worth while.

**Dec. 13**—Before coming home today, after taking the eggs to the auction, I went over to Walter Buss to borrow his pipe dies. I am installing the plumbing work in this new dwelling at odd times. Incidentally, I stopped by the supply house for additional pipe fittings. It always takes a barrel of fittings when I do plumbing work, because I have such weird ideas. I am connecting a hot water tank to the furnace and also to a tank heater stove. In cold weather the furnace coil heats the water, and in the summer, the stove can be used. I say at odd times, if one can consider working until 1 a.m. and after as being odd times.

**Dec. 14**—There were four painters on the job today. Old Man Shuey said he would be through by Saturday night. I immediately phoned the auction that the big night would be the 20th and appointed Florence Dowling as chairman of the entertainment committee. Everybody is invited, also their wives and sweethearts.

The old hens in the block house are now getting the "works." Hot buttermilk poured over their mash in the morning makes them go wild with delight. Aside from raw meat, I don't know of anything that stands a flock of birds on their ears as much as milk. They just fall all over each other to get to the hoppers.

**Dec. 15** — The temperature in the egg room is 40 degrees and the relative humidity is 70 degrees. Egg quality, like that proverbial goose, is hanging high. As a matter of fact, interior egg quality is one of my least worries. If the ration is right and conditions in the egg room correct, there is no excuse for poor quality eggs. But it really isn't as simple as it sounds.

**Dec. 16**—After a bird has had the very life forced out of her for about 12 months, the molt is an exceptionally trying time. It is a great change in her life. Sometimes it is a question of life and death. I have known birds to go into the molt in excellent condition, all things taken into consideration, and come out of it a physical wreck. Today I mopped up on a bunch of these weaklings; they were weak sisters and no question about it. Two fair sized hands full of legs meant an awful lot of fuel for the incinerator. This time the incinerator happened to be the furnace. Kid White threw the doors wide open, not

because of any odors, but to let the excess heat escape. Costly fuel, but easy disposal.

**Dec. 17** — The regular Saturday work was completed on schedule time and the calf barn cleaned. The calf barn happens to be a 10 by 12 tile structure previously used as a manure house before the advent of our rubber-tired wheelbarrow. It makes an ideal place for the calves—warm, dry and well ventilated.

The painters finished decorating the new dwelling. Monday will be clean-up day in preparation for the big party for the auction crowd. All seem to be expecting to have a large time.

Tonight I ceased making a pullet egg grade. I have packed my last case of this grade until next fall. There is nothing like having well-bred stock that lay a minimum of this size.

**Dec. 19**—"Redding-up" is a right smart job in a newly constructed house. The basement, of course, was the worst, and that was bad. It had been used as a catch-all, and it sure caught all the odds and ends of everything. We waded in, burned, carted out, stacked up and laid down articles too numerous to mention. All windows were washed inside and out, and still they need washing and more washing to remove paint, varnish and plaster. Tomorrow I will bring out the chairs and tables.

The pullets in the west house are eating like a house afire. They are eating, and production is on the up and up. There are six pullets that are still at large, just can't catch them. They roost in the spruce trees and fly like birds when approached. But their time is coming in the sweet by and by.

**Dec. 21**—Tired, well, I guess yes. Kid White slept all afternoon. Donnie's little dog, Mabel, has been stretched out on the floor all day, absolutely worn out. The Kid had roasted 15 pounds of peanuts, baked three angel food cakes, made three gallons of ice cream and five gallons of hot chocolate. It was a party, a regular stem-winder; wives, husbands and sweethearts—everybody came. Mrs. Treat, Florence Dowling, Mildred Senff, George Group, Donnie and I played a game called Chinese Checkers. As Al Smith would say, I must be a Chinaman with my hair cut, for by the time I got on to the game, George had won it. These three young ladies helped Kid White and May serve the refreshments, which were mowed down and stowed away. We got to bed at two o'clock.

**Dec. 22**—We are beginning to make preparations for the Christmas week-end. Harold started cleaning the boards this afternoon. The weather had warmed up, so cleaning was comparatively easy. Droppings always thaw from the bottom up so it is possible to remove them although they are frozen. It means extra bulk to handle, a few extra trips, because it is hard to pack on a load. Extra feed has been ordered to be delivered Saturday. The 65-gallon oil tank has been replenished. I am going to bring out a few sacks of hard coal for the hot water stove tomorrow. Then we will be all set for everything.

**Dec. 23**—The usual Friday trip to town was made in record time. Everybody seems to be in a hurry these days. Suppose they have the Yuletide spirit in their bones. Monday will be a holiday too, but the auction will be held at 9 a.m. It simply means that the boys want all eggs delivered early so I tried to do my part.

We tackled the dropping boards in the three north houses after dinner. The weather hadn't warmed up quite as much as we had anticipated and scraping was rough. After well nigh jerking my arms out of their sockets a few times, I conceived the idea of loosening them with the ice hoe. An ice hoe is an ordinary garden hoe straightened. The cleaning went easier.

**Dec. 24**—Christmas Eve, the night that comes only once a year, is here at last. Santa Claus has already come and departed for parts unknown. The Old Man has just finished packing the eggs, taking care of the cows and the last round of the long houses has been made. It is a quiet, silent night and all is well. Verne Chamberlin, Georgianna and the two children will be over tomorrow for a turkey dinner. Donnie and I will do the work as Harold and May are going home for the day. Mash buckets have been filled and extra oiled corn has been mixed. We are still mixing about one-half of 1 per cent cod liver oil with the corn. It doesn't take long to do it, and the dividend is large.

**Dec. 26**—We did only the necessary work again today. Harold went hunting; Kid White put off washing until tomorrow; Donnie White, the old reliable, stuck on the job with me. Nothing happened of any importance except that a nervous pullet flew out of the nest and hit me square in the face.

**Dec. 27**—Evidently there has been much cooing and wooing among the auction employees over the Yuletide week-end. One girl was married Christmas Day and two others were wearing diamond rings this morning. A vast array of glittering stones greets the eye when one enters the building. Discreet inquiry revealed the fact that neither the new husband or the husbands-to-be are chicken men. I am still wondering if there is any significance in this fact.

**Dec. 28**—Feather pulling and picking among the pullets is gradually on the decline. For the past few days we have had no trouble. But this doesn't mean that the old vigilance has ceased.

This red salve we put on the victims seems to be hot stuff. One sniff and the pursuer turns away in apparent disgust. Frankly, I don't smell, but Harold got a good, stout whiff of it today and it made him as sick as a dog. In fact, I began to think he was going to start eating grass.

**Dec. 31**—To me, there is something sad about today, the last day of the year. I just don't know exactly what the new year might bring forth. I know what has taken place in the past, but the future is unknown, and the unknown is more terrifying than the known. Anyway, the old year has been rounded out in good shape. The work is up to date; we are even with the board. Not only is the year's work up to date but it has been satisfactory. I, too, like the young lovers of the auction, can look out on the world and laugh, and the world laughs back.

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A RECENT Detroit, Mich., ordinance provides $100 fine or 30 days in jail for carrying chickens upside down by their legs.

—Carl H. Schroeder, Poultry Tribune, October, 1939.

# VIEWS OF THE EDITORS

## The Farmer's Eggs

The idea of stimulating the consumption of a food through individual efforts of members of a benefiting industry is being tested by the International Baby Chick Association.

The association plans an orthodox "egg consumption drive" through retail grocery stores, but it is also asking hatcherymen to cooperate in directing "eat eggs" publicity at the egg producer. Almost every hatchery mails out several hundred pieces, at least, of advertising copy each year. Some of the larger ones have mailings in the hundreds of thousands. It is estimated that a small group of the larger hatcheries will mail about 20,000,000 pieces of printed matter a year to farmers who raise chickens.

Each one of the hatcherymen is being asked to include a "spot" of copy in each catalog, price list, post card, broadside, letter or advertisement he puts out, urging the poultry raisers and farmers to eat more eggs. The association believes that if this is done the problem of egg consumption will be brought before 5,000,000 chick buyers and the millions of persons who comprise the families of American poultry raisers.

A suggestion for the copy to be used is:

"Springtime is flush production time. This year, let's eat and use more eggs at home. Just an extra egg or two used at home each day by all the thousands of American poultry farmers will help reduce the spring surplus and help make you more money."

Just how far-reaching this plan would be if every poultry farmer in America cooperated is hard to say, but an extra egg or two a day used at the source of production would probably reduce the market supply of eggs 10 to 20 per cent, and this surely would be reflected in higher prices for market eggs.

—Feedstuffs, Nov. 25, 1939.

## Selling the Big Turkeys

Feed was plentiul this year, so the turkeys which are being marketed now average heavier per bird. This adds another problem to the job of marketing a 22 per cent larger crop of turkeys, for a survey by the National Association of Food Chains several years ago indicated that 73 per cent of the demand was for turkeys within the range of 8 to 13 pounds. Only 5 per cent bought turkeys over 18 pounds.

Chain stores have been doing a lot to sell more turkeys and to extend the season in which they are being served beyond the holidays, but John A. Logan, head of the food chain organization, offers the suggestion that turkey producers supplement the activities of the chain stores by getting restaurants, hotels, railroad dining cars, hospitals, charitable homes, Army and Navy, penal institutions and others to purchase large size turkeys and to serve them over a longer period. It would offer a means of moving more of the heavy birds which do not find a ready sale among housewives.

While housewives prefer and buy the smaller turkeys, the smaller breeds which have been developed don't seem to be gaining in popularity among growers to the extent that the massive Broad Breasted Bronze turkeys are winning favor. Still further effort will have to be put forth in selling the large birds, and perhaps it may lead eventually to the sale of turkeys by the piece, a practice which is still prohibited in many sections.

—Everybodys Poultry Magazine, Dec. 1939.

## More Uses or Users

During 1938 the use of poultry meat showed a loss of 10%, as compared with the ten year average. We do not have figures for egg consumption for a like period but recently the use of eggs has been showing a slight gain over last year. The use of poultry meat has also shown some gains since 1938. However, we have reason to be concerned about even a small loss in the use of either eggs or poultry because methods of production and actual volume of production are being stepped up.

Why should there be a decline in the use of poultry in a country where living standards are on the increase? Perhaps it is due to old-fashioned marketing methods that show little change in a hundred years, or it may be changing living conditions; poor preparation of poultry dishes in hotels, restaurants, etc.; the pressure of other food products; or breeding and production standards that are not up to par. Some people believe it may be due to the fact that with so many women in office and factory jobs there is little time to prepare a "chicken dinner." During the week women are too busy to cook and on Sunday they want to take it easy.

Whatever the reasons, we must look for an answer, and that real soon. But, first of all, the producer must show more concern, more vital interest, because fundamentally it is our problem. At the same time, every branch of the industry should try to find the answer to this question and cooperate to the fullest in an effort to stimulate consumption above its present level.

—Poultry Item, Oct. 1939.

## A Needed Research

There is a real need for greater knowledge concerning the nutritive properties of eggs and poultry meat. Our present knowledge is so meager that the poultry and egg industry is seriously handicapped when attempting to extol the goodness of its products. A nation-wide movement is developing with the idea of combined industry effort toward a possible means of increasing consumption. A wise first procedure in such a program would be the initiating of research studies to find out all we can about eggs and poultry meat.

—U. S. Egg and Poultry Magazine, Oct. 1939.

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◀◀ A MANHATTAN butcher, caught in the city's pre-Thanksgiving day drive on short-weight and short-changing, offered the excuse that he became so excited when the inspector came in and ordered a big turkey after a dull day that he miscalculated the weight. Another pleaded near-sightedness for short-weighting an inspector 4 ounces on a turkey.

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# Egg White Problems

By H. H. Alp

**University of Illinois**

***Excerpt from a Circular***

CONSUMERS look at the egg white as one means of determining the quality of individual eggs. The measurement generally used is the amount of thick, jelly-like white around the yolk. Flock owners should, therefore, take every precaution to produce and market eggs with this characteristic.

### Hot Dry Weather and Watery White

Eggs with a watery white are one of the chief problems with which the producer of quality eggs has to contend. While the exact cause of this condition in every instance is still to be determined, hot dry weather is known to be a contributing cause.

During this kind of weather eggs should be picked up from the nests at least three times a day. Not only will the laying house be quite hot, but the normal body temperature of the hens will be about 107 degrees Fahrenheit, and when eggs are left in the nests during the day, the heat will cause the white to become thin and watery. Particularly is this true when broody hens are allowed to stay on the nests.

After they are gathered, eggs should be allowed to cool before being placed in cases or cartons. If gathered in pails or tight baskets, they should be spread out to permit quick cooling. Wire baskets are often used for collecting eggs because they let the heat escape.

In hot weather, eggs should be marketed at least twice a week; and they should be carefully protected from heat and sun while in transit.

### Range as Indirect Cause of Thin White

While there is no definite evidence to prove that the quality of the egg white is lowered when hens are permitted an unlimited range, the best eggs appear to be coming mainly from flocks that are either confined to houses or are permitted only very limited range. In test shipments from Illinois to New York in 1936, eggs from flocks allowed free run of the barnyard graded decidedly lower than those from flocks confined or on limited range with access only to the rations provided and no chance for scavenger feeding.

For the owner of a small flock, the solution of the range problem seems to be to keep the flock confined for about two-thirds of the day. Limiting the range this much will help not only to improve the quality of the eggs, but also to produce clean eggs and maintain production at a steady level.

### Rough Handling Lowers Quality

The normal white of a fresh egg is made up of three rings of albumen, two of them thin and the other quite jelly-like. They will be found in the broken-out egg as a thin ring of white next the yolk, a thick jelly-like section next to the thin ring, and then another layer of thin white. In a new-laid egg the total egg white weighs about 34 grams. The outer liquid

Circular 494, "High Quality Eggs for Illinois Markets."
Illinois College of Agriculture, Urbana, Ill.

makes up about 22 per cent of this weight, the inner liquid about 25 per cent, and the middle layer of thick or firm white about 53 per cent. Thus, the total volume of thin white is about equal to the volume of thick white.

Rough handling or jarring seems to have a tendency to break down the partitions between the three layers of egg white, causing the thick white to become diluted with thin white. Care should, therefore, be taken to avoid setting a basket or pail of eggs down roughly or bumping it against the door jamb when gathering eggs, or handling the cases carelessly when loading them into the wagon or truck.

## *Sand Bags of Burlap Limit Use for Feeds*

The European war is having a very direct bearing upon the feed market. Tremendously large quantities of burlap have been purchased by England and France for sandbags to help protect historical buildings and landmarks from damage by bombs. Shipments from India that normally might come to the United States have been diverted to Europe, and several vessels containing burlap shipments have been sunk by submarines. The result has been an almost sensational advance in burlap prices. It is claimed that at least $1.00 to $1.50 ton of the advance in millfeed in recent weeks has been due to the increased cost of the package.

The scarcity and high cost of burlap is such that mills are beginning to use cotton bags in filling feed orders. Feed packed in cottons in ordinary times would cost about 50 cents ton more than when packed in burlap, but today some mills are offering feed in cottons at the same price as burlap and in at least one instance, at 25 cents ton less.

—Feedstuffs, Nov. 11, 1939.

✓✓ HIDDEN TAXES will account for about 36 cents of the $2.97 housewives will pay this year for an average 11-pound turkey, the National Consumers' Tax Commission estimates.

—The American Produce Review, Oct. 18, 1939.

✓✓ ON TWIZELL FARM, near Coldstream, Berwickshire, (England), a hen has taken over the rearing of eight kittens, and is nursing them carefully. Anyone approaching them is met with defiance. The mother cat, however, is allowed to nestle under the hen's wings beside the kittens.

—Eggs, July 19, 1939.

✓✓ A BARRED ROCK, owned by Mrs. F. Viney of College Corner, Ohio, was half white-skinned and half yellow-skinned.

—Carl H. Schroeder, Poultry Tribune, October, 1939.

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# POULTRY STATISTICS

## Hens on Farms—Rate of Lay

**Number of Hens Per Flock, and of Eggs Laid Per Hen and Per Flock, First Day of Month**

| Geographic Division | Layers per flock | | | Eggs per 100 layers | | | Eggs per flock | | |
|---|---|---|---|---|---|---|---|---|---|
| | Jan. 1 | Oct. 1 | Nov. 1 | Oct. 1 | Nov. 1 | Aggregate Jan.-Nov. | Oct. 1 | Nov. 1 | Aggregate Jan.-Nov. |
| North Atl. | | | | | | | | | |
| 1928-37 (Av.) | 96.9 | 79.6 | 87.3 | 28.0 | 19.5 | 444 | 22.1 | 16.8 | 374 |
| 1938 | 96.7 | 81.4 | 88.7 | 31.3 | 26.8 | 488 | 25.4 | 23.8 | 416 |
| 1939 | 98.4 | 78.6 | 89.7 | 33.3 | 27.2 | 491 | 26.1 | 24.3 | 410 |
| North Cent. | | | | | | | | | |
| 1928-37 (Av.) | 115.7 | 88.5 | 96.6 | 25.0 | 16.0 | 385 | 22.2 | 15.6 | 383 |
| 1938 | 102.4 | 82.1 | 93.4 | 27.4 | 20.4 | 434 | 22.5 | 19.4 | 390 |
| 1939 | 110.4 | 86.3 | 98.5 | 26.5 | 19.8 | 430 | 23.1 | 19.9 | 410 |
| South Atl. | | | | | | | | | |
| 1928-37 (Av.) | 60.1 | 50.4 | 52.9 | 24.5 | 19.9 | 390 | 12.3 | 10.6 | 202 |
| 1938 | 55.8 | 48.9 | 53.3 | 27.6 | 23.9 | 430 | 13.5 | 12.7 | 213 |
| 1939 | 59.9 | 50.3 | 55.7 | 28.8 | 24.8 | 433 | 14.5 | 14.0 | 219 |
| South Cent. | | | | | | | | | |
| 1928-37 (Av.) | 66.8 | 55.4 | 57.9 | 23.6 | 19.9 | 373 | 13.2 | 11.6 | 212 |
| 1938 | 59.3 | 53.9 | 57.5 | 26.3 | 22.8 | 416 | 14.2 | 13.2 | 220 |
| 1939 | 63.6 | 56.4 | 59.6 | 24.1 | 21.6 | 406 | 13.7 | 13.1 | 228 |
| Western | | | | | | | | | |
| 1928-37 (Av.) | 74.0 | 61.5 | 66.6 | 30.6 | 22.2 | 451 | 18.8 | 14.4 | 294 |
| 1938 | 71.1 | 61.5 | 67.3 | 33.1 | 25.5 | 471 | 20.4 | 16.9 | 301 |
| 1939 | 72.6 | 62.2 | 69.2 | 32.2 | 26.5 | 472 | 19.8 | 17.4 | 298 |
| United States | | | | | | | | | |
| 1928-37 (Av.) | 86.0 | 68.6 | 73.8 | 25.5 | 18.1 | 395 | 17.3 | 13.5 | 290 |
| 1938 | 77.6 | 65.6 | 72.5 | 28.2 | 22.3 | 440 | 18.3 | 16.3 | 299 |
| 1939 | 82.8 | 68.0 | 75.6 | 27.5 | 22.0 | 436 | 18.5 | 16.8 | 309 |

The number of laying birds in farm flocks on November 1 was 4.3 per cent greater than a year ago. Returns showed slightly more than an average seasonal gain over October 1. The number of pullets not yet of laying age still to be added to the laying flock was also slightly greater than a year ago. The rate of egg production per layer remains high, though slightly below last year's record.

The seasonal increase in numbers of layers in farm flocks from August 1 to November 1 has been 14.3 birds this year compared with 13.2 last year and the 10-year (1928-37) average seasonal increase for that period of 9.6 birds. The average number of layers per flock of 75.6 on November 1 was the largest for that date since 1930. A year ago there were 72.5 layers and the 10-year average is 73.8 per flock. Compared with a year ago, increases in layers were shown in all geographic regions. The regional increases were, in round numbers, in the West North Central States 7 per cent, South Atlantic 5 per cent, South Central and East North Central 4 per cent, Western States 3 per cent, and North Atlantic 1 per cent.

Numbers of layers on hand per flock on November 1 were above the 10-year averages in all geographic areas except in the West North Central States where they were about 1 per cent lower. The increase in the East North Central and South Atlantic States was about 5 per cent, in the Western States about 4 per cent, and in the North Atlantic and South Central States about 3 per cent.

The average number of pullets not yet of laying age in farm flocks on November 1 was reported at 34.6 compared with 33.8 a year ago, an increase of 2.4 per cent. The South Atlantic, South Central, and North Atlantic States show decreases of 1, 2, and 3 per cent respectively, while the East and West North Central groups show increases of 3 and 5 per cent respectively. The Western States show about a 11 per cent increase.

The seasonal rate of egg production per layer continues slightly below that of last year and well above the 10-year average, as has been the case in every month of this year except January and September when production per hen was higher than last year. An average production of 22 eggs per 100 layers was reported on November 1, as compared with 22.3 eggs a year earlier and a 10-year November 1 average of 18.1 eggs per 100 layers. Average production per layer was slightly higher than last year in the North Atlantic, South Atlantic, and Far Western areas, but lower in the East North Central, West North Central, and South Central States.

Total egg production on November 1 is about 3 per cent larger than the production of a year ago and about 24 per cent above the 10-year November 1 average. The total egg production compared with a year ago is larger in all geographic areas except the South Central States, where it is about 1 per cent less. In the South Atlantic States the increase is about 10 per cent, in the East North Central and Western States about 3 per cent and in the North Atlantic and West North Central States about 2 per cent.

The aggregate production of eggs indicated by the 11 months' returns, January to November, is about 3 per cent greater than the aggregate for the same months of last year. It is about 7 per cent above the 10-year average aggregate and the largest aggregate for these months since 1927. Compared with last year and the 10-year average, the aggregate production is larger in all geographic areas except the North Atlantic and Western States where it fell slightly below last year's aggregate.
—Comment from Poultry and Egg Production Report.

## Egg Prices

### 1939 Egg Prices at New York City

| Kind | Nov. 3 | Nov. 10 | Nov. 17 | Nov. 24 | Nov. 24, '38 |
|---|---|---|---|---|---|
| Mixed Color Firsts | 23½ | 23½ | 23½ | 25 | 29½ |
| Nearby and Midwestern White Premium Marks | 35 -37½ | 35½-38 | 32½-35 | 31 -33½ | 38 -40 |
| Nearby and Midwestern White Specials | 34½ | 35 | 32 | 30½ | 34 |
| Pacific Coast Specials | 38-39 | 38½-39 | 35¼-35¾ | 33½-34 | 41 -42¾ |
| Nearby and Western Brown Exchange Specials | 33 | 34½ | 33 | 31¾-32 | 35½ |

Varied price changes occurred in the egg markets the past month. So different were price trends that a review almost requires a consideration of each market and each grade classification separately. In general, however, the price reductions were mostly on top quality large eggs, while ordinary quality and mediums were affected less; in some cases the latter actually advanced.

As to reasons for the irregularity of these price changes, it would appear that buying interest may have been centered around a particular price level to a greater degree than usual. This may have been due to sales efforts directed toward the movement of eggs of average quality which were in relatively larger supply than the better grades. The month's price declines on best eggs have narrowed the differential between grades. Retail prices have been affected by the foregoing changes in wholesale values. Effort to move storage eggs has been noted, and the success of this is reflected in the fairly active reduction of stocks, which has lessened the difference between this and last year's reserves. Of influence also is the production situation, both current and prospective during the balance of the season.
—Comment from Monthly Egg and Poultry Markets Review.

### Farm Prices of Eggs per Dozen

(Figures given in cents)

| Year | Jan. 15 | Feb. 15 | Apr. 15 | June 15 | Aug. 15 | Sept. 15 | Oct. 15 | Nov. 15 | Dec. 15 |
|---|---|---|---|---|---|---|---|---|---|
| Average 1928-37 | 25.9 | 21.6 | 17.4 | 17.4 | 20.6 | 23.9 | 27.0 | 31.1 | 30.3 |
| 1938 | 21.6 | 16.4 | 15.9 | 18.2 | 21.0 | 24.9 | 27.1 | 29.0 | 27.9 |
| 1939 | 18.8 | 16.7 | 15.5 | 14.9 | 17.5 | 20.6 | 22.9 | 25.8 | |

## Poultry Meat Prices

### Farm Prices of Chickens per Pound

(Figures given in cents)

| Year | Jan. 15 | Feb. 15 | Apr. 15 | June 15 | Aug. 15 | Sept. 15 | Oct. 15 | Nov. 15 | Dec. 15 |
|---|---|---|---|---|---|---|---|---|---|
| Average 1928-37 | 15.1 | 15.4 | 16.4 | 16.1 | 15.7 | 16.0 | 15.4 | 14.9 | 14.4 |
| 1938 | 16.7 | 16.0 | 16.2 | 15.7 | 14.2 | 14.3 | 13.6 | 13.6 | 13.6 |
| 1939 | 14.0 | 14.2 | 14.4 | 13.4 | 13.0 | 13.6 | 12.7 | 12.4 | |

## Receipts of Eggs and Poultry

### Receipts of Eggs at Eastern Egg Auctions

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| November 4 | 26 | 21,971 | +1.52 | +26.52 |
| November 11 | 25 | 21,201 | +0.69 | +17.15 |
| November 18 | 25 | 24,287 | +2.23 | +12.14 |
| November 25 | 27 | 28,225 | +1.81 | +16.91 |

### Receipts of Eggs (Cases) at 4 Markets*

| Geographic Sections | October 1939 | October 1938 | October % change | Jan. to Oct., Inc. 1939 | Jan. to Oct., Inc. 1938 | Jan. to Oct., Inc. % change |
|---|---|---|---|---|---|---|
| New England | 32,894 | 19,549 | + 68.3 | 317,336 | 243,857 | + 30.1 |
| Middle Atlantic | 105,234 | 87,827 | + 19.8 | 1,702,374 | 1,416,061 | + 20.2 |
| South Atlantic | 11,575 | 9,332 | + 24.0 | 247,353 | 230,859 | + 7.1 |
| East North Central | 91,896 | 95,359 | − 3.6 | 2,464,336 | 2,371,593 | + 3.9 |
| West North Central | 199,289 | 272,639 | − 26.9 | 7,031,846 | 6,147,451 | + 14.4 |
| South Central | 218 | 1,415 | − 84.6 | 55,375 | 97,070 | − 43.0 |
| Mountain | 16,764 | 24,504 | − 31.6 | 243,331 | 394,194 | − 38.3 |
| Pacific | 96,179 | 76,613 | + 25.5 | 368,864 | 600,203 | − 38.5 |
| Miscellaneous | 305 | 244 | + 25.0 | 4,500 | 4,602 | − 2.2 |
| TOTAL | 554,354 | 587,482 | − 5.6 | 12,435,315 | 11,505,890 | + 8.1 |

### Receipts of Dressed Poultry (pounds) at 4 Markets*

| | | | | | | |
|---|---|---|---|---|---|---|
| New England | 1,394,860 | 956,432 | + 45.8 | 11,584,396 | 10,060,414 | + 15.1 |
| Middle Atlantic | 2,311,631 | 3,271,465 | − 29.3 | 35,545,562 | 32,378,333 | + 9.8 |
| South Atlantic | 1,449,942 | 702,939 | +106.3 | 14,951,378 | 5,984,224 | +149.8 |
| East North Central | 4,153,569 | 4,055,396 | + 2.4 | 31,931,633 | 23,222,557 | + 37.5 |
| West North Central | 25,755,579 | 24,680,673 | + 4.4 | 121,521,849 | 104,115,122 | + 16.7 |
| South Central | 757,257 | 925,303 | − 18.2 | 14,952,739 | 17,036,000 | − 12.2 |
| Mountain | 153,969 | 690,741 | − 77.7 | 3,101,301 | 2,717,348 | + 14.1 |
| Pacific | 517,945 | 715,721 | − 27.6 | 6,524,903 | 7,792,147 | − 16.3 |
| Miscellaneous | 24,000 | – | 0 | 58,117 | – | 0 |
| TOTAL | 36,518,752 | 35,998,670 | + 1.4 | 240,171,878 | 203,306,145 | + 18.1 |

* New York, Chicago, Philadelphia, and Boston.

In October, terminal market receipts of eggs were lighter than during that month last year, which was the first time this year that arrivals were smaller than in a corresponding period in 1938. The October reduction from a year earlier at the four markets was 5.6 per cent, although receipts from the Northeastern and Pacific Coast areas were larger. Since November 1, the situation has changed; arrivals again are greater than a year ago. The four markets' increase in November is approximately 9 per cent, although at New York, which received more eggs than Chicago, Philadelphia, and Boston combined, the increase is only about 4 per cent.

### Receipts of Eggs at Pacific Coast Primary Markets

| Week Ending | No. of Plants | Cases of Eggs 1939 | Cases of Eggs 1938 | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| November 4 | 59 | 53,915 | 49,570 | − .27 | + 8.77 |
| November 11 | 62 | 54,829 | 48,710 | + .51 | +12.56 |
| November 18 | 62 | 56,536 | 48,053 | +3.11 | +17.65 |
| November 25 | 62 | 56,229 | 47,957 | −0.54 | +17.25 |

Receipts at country packing plants on the Pacific Coast are now substantially greater than they were a year ago, the increase for the third week of November being close to 18 per cent. There are some indications of a seasonal increase during recent weeks. The opposite is true of Central Western packing plants, for sizable weekly decreases continue, with reductions also under 1938. The latter has been the case since mid-September.

### Receipts of Eggs and Poultry at Central Western Primary Markets

| Week Ending | Cases of Eggs 1939 | Cases of Eggs 1938 | Cases of Eggs % Chg. | Pounds of Poultry (000 omitted) 1939 | Pounds of Poultry (000 omitted) 1938 | Pounds of Poultry (000 omitted) % Chg. | Pounds of Young Stock (000 omitted) 1939 | Pounds of Young Stock (000 omitted) 1938 | Pounds of Young Stock (000 omitted) % Chg. | Pounds of Fowl (000 omitted) 1939 | Pounds of Fowl (000 omitted) 1938 | Pounds of Fowl (000 omitted) % Chg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 4 | 14,655 | 16,520 | −11.29 | 7,199 | 5,814 | +23.83 | 4,396 | 3,664 | +19.97 | 2,709 | 2,063 | +31.28 |
| Nov. 11 | 13,232 | 13,609 | − 2.77 | 7,553 | 6,432 | +17.42 | 4,596 | 4,197 | + 9.50 | 2,863 | 2,161 | +32.50 |
| Nov. 18 | 13,551 | 14,529 | − 6.73 | 7,502 | 7,216 | + 3.96 | 4,497 | 4,622 | − 2.71 | 2,903 | 2,496 | +16.30 |
| Nov. 25 | 18,221 | 13,053 | +39.59 | 7,394 | 6,676 | +10.76 | 4,295 | 4,113 | + 4.43 | 2,989 | 2,468 | +21.14 |

Except for the usual interest in turkeys at this season, the situation in November poultry markets was unchanged from the more or less dull conditions described a month ago. Even with more favorable weather, slow trading is reported. Prices are probably about a cent lower on the whole.

Marketings of live poultry in the Central West are now much heavier than a few weeks back, and this applies both to young stock and fowl. These classes have shown successive weekly increases since the middle of October. Compared with last year, November receipts of young stock at Central West packing plants have been about 15 per cent larger this year, and fowl receipts are more than 30 per cent larger.

—Comment from Monthly Egg and Poultry Markets Review.

## Egg-Feed Ratios

### New York Egg-Feed Ratio

| Week Ending | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1939 | 1938 | 1937 | Avg. Egg Price per Doz. (Dollars) 1939 | 1938 | 1937 | Avg. Feed Cost per 100 lbs. (Dollars) 1939 | 1938 | 1937 |
|---|---|---|---|---|---|---|---|---|---|
| November 2 | 6.3 | 4.3 | 5.2 | .286 | .357 | .359 | 1.83 | 1.52 | 1.85 |
| November 9 | 6.4 | 4.5 | 5.1 | .293 | .340 | .352 | 1.88 | 1.52 | 1.81 |
| November 16 | 6.4 | 4.6 | 5.5 | .299 | .336 | .323 | 1.91 | 1.54 | 1.78 |
| November 23 | 6.6 | 4.6 | 5.9 | .289 | .336 | .302 | 1.91 | 1.53 | 1.79 |
| November 30 | 7.3 | 4.4 | 6.4 | .263 | .349 | .277 | 1.92 | 1.54 | 1.77 |

### Chicago Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration 1939 | 1938 | 10-Yr. Av. 1929-38 | Price of Fresh Graded Firsts (Dollars) 1939 | 1938 | Cost of Ration per 100 lbs. (Dollars) 1939 | 1938 |
|---|---|---|---|---|---|---|---|
| November 4 | 4.73 | 3.48 | 4.23 | .235 | .260 | 1.111 | .906 |
| November 11 | 4.66 | 3.44 | 3.96 | .240 | .275 | 1.118 | .946 |
| November 18 | 4.62 | 3.61 | 3.97 | .245 | .275 | 1.131 | .992 |
| November 25 | 4.73 | 3.48 | 3.98 | .242 | .275 | 1.145 | .957 |

### Central California Egg-Feed Ratio

| Period | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1939 | 1938 | 1937 | 1936 | 1935 | 1934 |
|---|---|---|---|---|---|---|
| October | 6.01 | 4.43 | 5.51 | 5.87 | 4.77 | 6.17 |
| January-October | 7.18 | 6.95 | 8.80 | 7.24 | 6.67 | 8.33 |
| Year | | 6.50 | 8.27 | 7.07 | 6.41 | 7.92 |

—Data Compiled by Edwin C. Voorhies, University of California.

## Eggs in Storage

**Storage Holdings of Eggs**

| Kind | Nov. 1 5-Year Avg. 1934-38 | Nov. 1 1938 | Oct. 1 1939 | Nov. 1 1939 | % Change Nov. 38-Nov. '39 |
|---|---|---|---|---|---|
| Shell Eggs (cases) | 4,293 | 3,244 | 5,430 | 3,528 | + 8.7 |
| Frozen Eggs (lbs.) | 97,374 | 94,305 | 121,471 | 104,291 | +10.5 |
| Frozen Case Equivalent (cases)* | 2,782 | 2,694 | 3,471 | 2,980 | +10.5 |
| Total (cases) | 7,075 | 5,938 | 8,901 | 6,508 | + 9.5 |

* Frozen eggs are converted on the basis of 35 lbs. to the case.

Storage stocks of eggs in the 35 cities were reduced 47 per cent during the four weeks ended November 25, and this reduction brought remaining supplies down to within 32,000 cases of a year earlier. On the first of November the excess in the same markets was 196,000 cases. In terms of cases, the reduction in the 35 cities during the above 4 weeks' period was 1,417,000, compared with 1,253,000 last year. Continuing at this rate, the total U. S. reduction during November may approach 2 million cases. Such a reduction applied to the November 1 stocks of 3,528,000 cases affords some indication of what the December 1 stocks may be. On December 1, 1938, egg stocks were 1,439,000 cases, and the 1934-38 average for that date is 2,197,000 cases.

—Comment from Monthly Egg and Poultry Markets Review.

## Poultry in Storage

**Storage Holdings of Frozen Poultry**

| Kind | Nov. 1 5-Year Avg. 1934-38 | Nov. 1 1938 | Oct. 1 1939 | Nov. 1 1939 | % Change Nov. 38-Nov. '39 |
|---|---|---|---|---|---|
| | | (Thousand Pounds) | | | |
| Broilers | 14,777 | 10,759 | 9,025 | 10,008 | – 6.9 |
| Fryers | 8,772 | 7,283 | 3,748 | 7,277 | – 0.0 |
| Roasters | 13,746 | 15,253 | 6,716 | 13,164 | – 13.6 |
| Fowls | 14,193 | 12,943 | 11,095 | 15,742 | + 21.6 |
| Turkeys | 3,724 | 3,899 | 7,994 | 8,028 | +105.8 |
| Ducks | 6,638 | 10,780 | 10,005 | 9,205 | – 14.6 |
| Miscellaneous | 15,238 | 16,775 | 14,581 | 15,858 | – 5.4 |
| Total | 77,088 | 77,692 | 63,164 | 79,282 | + 2.0 |

## Hatchery Operations

Production of hatchery chicks during October this year is reported by the Agricultural Marketing Service as slightly larger than the record October output of last year.

Reports from 68 commercial hatcheries, located in the States along the Atlantic Seaboard and in certain midwestern States where the production of fall and early winter broilers is an important industry, show a combined production of 1,907,000 chicks during October. This is an increase of 1 per cent over the record output of October 1938.

**Eggs Set, Chicks Hatched, and Chicks Booked by Commercial Hatcheries**

| Geographic Section | No. of plants | Eggs Set During October | | | Salable Chicks Hatched During October | | | Chicks Booked Nov. 1 for Nov. or Later Delivery | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1939 | 1938 | % chg. | 1939 | 1938 | % chg. | No. of plants | 1939 | 1938 | % chg. |
| | | Thousands | | | Thousands | | | | Thousands | | |
| N. Eng. | 8 | 945 | 1,323 | –29 | 702 | 993 | –29 | 5 | 2,123 | 2,505 | –15 |
| Mid. Atl. | 9 | 353 | 387 | – 9 | 265 | 257 | + 3 | 9 | 139 | 197 | –29 |
| S. Atl. | 17 | 524 | 367 | +43 | 348 | 190 | +83 | 11 | 1,048 | 860 | +22 |
| Central | 34 | 951 | 636 | +50 | 592 | 450 | +32 | 24 | 677 | 411 | +65 |
| TOTAL | 68 | 2,773 | 2,713 | + 2 | 1,907 | 1,890 | + 1 | 49 | 3,987 | 3,973 | — |

Increases in October hatching over a year earlier ranged from 3 per cent in the Middle Atlantic States to 83 per cent in the South Atlantic section. In New England there was a marked decrease of 29 per cent compared with a year earlier which may in part be explained by the rise in feed prices earlier in the fall. As more of the feed used for broiler production in that area is shipped in from other states, a rise in feed costs placed the New England producer in a relatively less favorable situation.

With continued prospects for fairly abundant feed supplies on farms in the Middle Western States, and a moderately favorable relation between poultry prices and feed costs, producers apparently are going ahead with a program of expansion in the output of fall and winter broilers. This is reflected in a gain of 32 per cent in the October hatchings in these States over October of last year, compared with an increase of only 1 per cent for the country as a whole.

—Comment from Hatchery Report.

## Egg and Poultry Exports and Imports

**Exports of Eggs and Poultry**

| Commodity | | October 1939 | October 1938 | Jan. to Oct., Inc. 1939 | Jan. to Oct., Inc. 1938 |
|---|---|---|---|---|---|
| Eggs in Shell | (doz.) | 258,286 | 152,361 | 2,145,666 | 1,756,299 |
| Eggs and Yolks, frozen, dried, or canned | (lbs.) | Not available | Not available | Not available | Not available |
| Live Poultry | (lbs.) | 10,182 | 531 | 154,968 | 8,305 |
| Dressed Poultry | (lbs.) | 200,647 | 10,780 | 2,145,908 | 269,629 |

**Imports of Eggs and Poultry**

| Commodity | | October 1939 | October 1938 | Jan. to Oct., Inc. 1939 | Jan. to Oct., Inc. 1938 |
|---|---|---|---|---|---|
| Eggs in Shell | (doz.) | 43,274 | 20,433 | 267,316 | 182,844 |
| Whole Eggs, dried | (lbs.) | 0 | 15,000 | 40,500 | 152,115 |
| Whole Eggs, frozen | (lbs.) | 0 | 0 | 420 | 938 |
| Yolks, dried | (lbs.) | 78,900 | 25,170 | 526,075 | 251,825 |
| Yolks, frozen | (lbs.) | 0 | 0 | 25,330 | 430,220 |
| Egg Albumen, dried | (lbs.) | 28,296 | 54,908 | 415,579 | 522,739 |
| Egg Albumen, frozen | (lbs.) | 0 | 0 | 0 | 30 |
| Live Poultry | (lbs.) | 62,222 | 109,544 | 621,409 | 1,109,882 |
| Dressed Poultry | (lbs.) | 16,323 | 14,592 | 157,900 | 483,756 |
| Poultry, prepared | (lbs.) | 20,982 | 27,626 | 650,251 | 431,818 |

## Egg Breaking Operations

**Egg Breaking Operations During October, 1939**

| Commodity | | Quantities reported to date for Oct. 1939 | Same Firm Comparison | | |
|---|---|---|---|---|---|
| | | | Oct. 1939 | Oct. 1938 | % change in 1939 |
| | | Pounds | Pounds | | Per cent |
| Whole eggs (nothing added) | | 355,568 | 355,568 | 240,999 | + 48 |
| Mixed eggs (plain) | | 153,884 | 153,884 | 41,029 | +275 |
| Mixed eggs (emulsions, also with sugar, salt, etc.) | | 29,355 | 29,355 | 26,880 | + 9 |
| Egg whites (all descriptions) | | 338,563 | 338,563 | 76,907 | +340 |
| Egg yolks packed | Without salt, sugar, etc. | 242,274 | 242,274 | 56,932 | +326 |
| | With sugar | 10,013 | 10,013 | 11,935 | − 16 |
| | With salt | 50,000 | 50,000 | 0 | — |
| | All yolk emulsions, including glycerine | 0 | 0 | 0 | |
| Total—pounds | | 1,179,657 | 1,179,657 | 454,682 | +159 |
| Total—case egg equivalent | | 33,704 | 33,704 | 12,991 | |
| Number of firms reporting | | 39 | 39 | | |

## Poultry Canning Operations

**Poultry Canning Operations During October, 1939**

| Commodity | Quantities reported to date for Oct. 1939 | Quantities reported for Sept. 1939 | Same firm comparison | | |
|---|---|---|---|---|---|
| | | | Oct. 1939 | Oct. 1938 | % change in 1939 |
| | Pounds | Pounds | Pounds | | Per cent |
| Dressed poultry canned or used in canning | 3,159,841 | 2,980,546 | 3,159,841 | 1,962,743 | +61 |
| Number of firms reporting | 19 | 18 | 19 | | |

❝ I LIKE to think of the poultryman as the "county health nurse" for his flocks. He must be ever on the alert for the first case of any disease or upset. Keen observation will indicate to him the proper procedure; whether isolation, treatment or elimination of the affected bird should follow. He must decide when the situation is serious enough to demand the attention of a veterinarian.

—From talk "The Problem of the Regional Research Poultry Laboratory," by J. Holmes Martin, presented at Pa. State Poultry Assn. Meeting, State College, Pa., Oct. 19, 1939.

❝ MANY poultrymen with poor run-down strains of chickens seek to work miracles by buying a few pedigreed males. The results are usually disappointing. This matter of corrective breeding is most unreliable. The average poultryman would do better to start afresh with a new strain rather than to try to doctor up a sick strain with cockerels.

—Excerpt from talk by E. N. Larrabee at National Poultry Improvement Conference.

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# RESULTS OF LAYING TESTS

A big year is in prospect for standard egg laying tests. A total of 15,366 birds, representing 1182 pens from breeders from coast to coast, started the 1939-40 test year at the 16 tests. Texas now is the largest test, having 112 pens, a total of 1456 birds. Georgia ranks second in size with 104 pens, and Storrs is third with 100.

H. J. Hardin's birds at Georgia not only finished the first month at the head of the Rhode Island Red division, but outlaid all other pens in all tests. A second pen entered by the same breeder was just ten points behind the winners for the month, and rated second place.

Third high pen for the month, and highest in the New Hampshire breed, was Eben Wood's entry at Storrs. Crooks Farm's Reds and E. B. Parmenter's Reds at Storrs, and R. E. & F. H. Kendrick's Reds at Rhode Island placed fourth, fifth and sixth, respectively, among all pens. J. A. Hanson's entry at Storrs was the top pen of Leghorns and the seventh highest of all pens in the country; J. J. Warren's two entries of Reds at Storrs and Kauder's Leghorns at Georgia wind up this select group for October.

Norman W. Amidon's Barred Rock entry at Pennsylvania carried off highest honors in its breed. E. A. Hirt's pen at Storrs was highest in the White Rock section by a very narrow margin.

Leaders in their respective breeds at the conclusion of the 1938-39 Illinois Test at Quincy, were Walter Swanson, White Leghorns; Egyptian Hatchery, Barred Rocks; Illinois Hatchery, R. I. Reds; Mrs. Curtis Manshak, White Rocks; Corn Belt Hatchery, New Hampshires; Belldear Hatchery, White Wyandottes; Macomb Hatchery, Buff Orpingtons; H. R. Harnes, Brown Leghorns; and Wallace Moody, Buff Rocks.

### Twenty Highest Pens, All Breeds, to November 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| H. J. Hardin | Rhode Island Reds | 367 | 369.10 | Georgia |
| H. J. Hardin | Rhode Island Reds | 360 | 359.20 | Georgia |
| Eben Wood | New Hampshire | 333 | 350.75 | Storrs |
| Crooks Farm | Rhode Island Red | 355 | 347.00 | Storrs |
| E. B. Parmenter | Rhode Island Red | 354 | 345.15 | Storrs |
| R. E. & F. H. Kendrick | Rhode Island Red | 338 | 345.05 | Rhode Island |
| J. A. Hanson | White Leghorn | 359 | 339.80 | Storrs |
| J. J. Warren | Rhode Island Red | 353 | 339.45 | Storrs |
| J. J. Warren | Rhode Island Red | 349 | 337.85 | Storrs |
| Kauder's Pedigreed Leghorns | White Leghorn | 353 | 336.00 | Georgia |
| W. C. Mullins | Rhode Island Red | 329 | 335.55 | Texas |
| C. B. Davidsen | White Leghorn | 345 | 335.20 | Georgia |
| J. A. Hanson | White Leghorn | 345 | 333.15 | Storrs |
| Nelson's Leghorn Breeding Farm | White Leg. | 352 | 330.10 | Georgia |
| E. B. Parmenter | Rhode Island Red | 314 | 328.30 | Rhode Island |
| W. E. Pyles and Son | White Leghorn | 332 | 327.70 | Georgia |
| W. E. Pyles and Son | White Leghorn | 329 | 327.30 | Georgia |
| Burr's Poultry Farm | White Leghorn | 335 | 326.40 | Pennsylvania |
| George A. Pearce | New Hampshire | 328 | 323.95 | Hunterdon, N. J. |
| Kauder's Pedigreed Leghorns | White Leghorn | 328 | 323.70 | Georgia |

## High Pen in Each Standard Test to November 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| H. J. Hardin | Rhode Island Red | 367 | 369.10 | Georgia |
| Eben Wood | New Hampshire | 333 | 350.75 | Storrs |
| R. E. & F. H. Kendrick | Rhode Island Red | 338 | 345.05 | Rhode Island |
| W. C. Mullins | Rhode Island Red | 329 | 335.55 | Texas |
| Burr's Poultry Farm | White Leghorn | 335 | 326.40 | Pennsylvania |
| George A. Pearce | New Hampshire | 328 | 323.95 | Hunterdon, N. J. |
| Foreman Poultry Farm | White Leghorn | 322 | 318.45 | Michigan |
| E. B. Parmenter | Rhode Island Red | 317 | 317.90 | Florida |
| E. B. Parmenter | Rhode Island Red | 312 | 314.40 | Maine |
| Alampi Poultry Breed. Farm | Rhode Island Red | 336 | 313.10 | Passaic, N. J. |
| J. J. Warren | Rhode Island Red | 312 | 311.50 | New York State |
| Nelson's Leghorn Breeding Farm | White Leg. | 334 | 308.00 | Oklahoma |
| Foreman Poultry Farm | White Leghorn | 294 | 307.40 | Missouri |
| Baker Poultry Farm | White Leghorn | 321 | 289.80 | Central New York |
| E. B. Parmenter | Rhode Island Red | 287 | 281.80 | Western New York |
| J. A. Hanson | White Leghorn | 293 | 259.00 | Arizona |

## High Pen in Each Breed to November 1—(31 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| H. J. Hardin | Rhode Island Red | 367 | 369.10 | Georgia |
| Eben Wood | New Hampshire | 333 | 350.75 | Storrs |
| J. A. Hanson | White Leghorn | 359 | 339.80 | Storrs |
| Norman W. Amidon | Barred Rock | 337 | 322.00 | Pennsylvania |
| E. A. Hirt | White Rock | 307 | 291.45 | Storrs |
| Schwegler's Hatchery | White Wyandotte | 300 | 268.20 | Pennsylvania |
| Laclede Hatchery | Black Australorp | 278 | 246.80 | Oklahoma |
| Raymond Murphy | White Giant | 248 | 242.95 | Missouri |
| R. S. Thomas | Ancona | 245 | 211.90 | Pennsylvania |
| Colonial Poultry Farm | White Minorca | 162 | 165.30 | Missouri |
| Lindstrom Poultry Farm | Buff Minorca | 179 | 164.55 | Missouri |
| Famous Poultry Farm | Leghorn Cross | 179 | 161.70 | Georgia |
| Iowa M. Breeders | Buff Orpington | 132 | 127.75 | Missouri |
| Cedarlaid Poultry Farm | Brown Leghorn | 165 | 127.20 | Florida |
| E. J. Covey | Black Minorca | 84 | 77.65 | Texas |
| Charles A. Richardson | Buff Leghorns | 77 | 64.45 | New York State |
| S. E. Raymond | Lamona | 24 | 23.80 | Storrs |
| Harry Phillips | Columbian Rock | 17 | 15.75 | Missouri |
| Walter Dobe | Barnevelder | 1 | .90 | Western New York |
| R. L. Jones | Light Brahma | 1 | .85 | Hunterdon, N. J. |

## High Hen in Each Breed to November 1—(31 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| W. C. Mullins | Rhode Island Red | 31 | 33.05 | Texas |
| George M. Heberer | White Leghorn | 30 | 32.60 | Texas |
| Eben Wood | New Hampshire | 30 | 31.85 | Storrs |
| Norman W. Amidon | Barred Rock | 29 | 31.00 | Pennsylvania |
| John Spangenburg | White Rock | 30 | 30.85 | Maine |
| Raymond Murphy | White Giant | 27 | 27.80 | Missouri |
| Lindstrom Poultry Farm | White Wyandotte | 28 | 27.50 | Missouri |
| T. D. Brown | White Minorca | 24 | 25.30 | Texas |
| Iowa M. Breeders | Buff Orpington | 26 | 24.60 | Missouri |
| S. E. Raymond | Lamona | 24 | 23.80 | Storrs |
| Laclede Hatchery | Black Australorp | 23 | 23.20 | Oklahoma |
| Henry F. Waitt | Ancona | 27 | 23.20 | Maine |
| Henry F. Waitt | Buff Minorca | 22 | 22.35 | Maine |
| E. J. Covey | Black Minorca | 23 | 20.55 | Texas |
| Famous Poultry Farms | Leghorn Cross | 22 | 19.90 | Georgia |
| Cedarlaid Poultry Farm | Brown Leghorn | 19 | 15.90 | Florida |
| Charles A. Richardson | Buff Leghorn | 19 | 15.35 | New York State |
| Harry Phillips | Columbian Rock | 11 | 10.40 | Missouri |
| Walter Dobe | Barnevelder | 1 | .90 | Western New York |
| R. L. Jones | Light Brahma | 1 | .85 | Hunterdon, N. J. |

## High Hen in Each Standard Test to November 1

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| W. C. Mullins | Rhode Island Red | 31 | 33.05 | Texas |
| E. B. Parmenter | Rhode Island Red | 30 | 32.75 | Storrs |
| E. B. Parmenter | Rhode Island Red | 30 | 31.95 | Florida |
| Louis H. Ritzhaupt | Rhode Island Red | 29 | 31.60 | Oklahoma |
| H. J. Hardin | Rhode Island Red | 29 | 31.25 | Georgia |
| R. E. & F. H. Kendrick | Rhode Island Red | 30 | 31.10 | Rhode Island |
| Norman W. Amidon | Barred Rock | 29 | 31.00 | Pennsylvania |
| John Spangenburg | White Rock | 30 | 30.85 | Maine |
| Foreman Poultry Farm | White Leghorn | 28 | 30.60 | Missouri |
| Joachim Breeding Farm | Rhode Island Red | 28 | 30.50 | New York State |
| E. B. Parmenter | Rhode Island Red | 28 | 30.15 | Western New York |
| E. B. Parmenter | Rhode Island Red | 27 | 29.60 | Passaic, N. J. |
| Foreman Poultry Farm | White Leghorn | 27 | 29.60 | Central New York |
| W. E. Pyles | White Leghorn | 29 | 29.40 | Michigan |
| George A. Pearce | New Hampshire | 29 | 29.30 | Hunterdon, N. J. |
| Del Rio Farm | New Hampshire | 26 | 27.70 | Arizona |

## 20 Highest White Leghorn Pens in Country to November 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| J. A. Hanson | 359 | 339.80 | Storrs |
| Kauder's Pedigreed Leghorns | 353 | 336.00 | Georgia |
| C. B. Davidsen | 345 | 335.20 | Georgia |
| J. A. Hanson | 345 | 333.15 | Storrs |
| Nelson's Leghorn Breeding Farm | 352 | 330.10 | Georgia |
| W. E. Pyles and Son | 332 | 327.70 | Georgia |
| W. E. Pyles and Son | 329 | 327.30 | Georgia |
| Burr's Poultry Farm | 335 | 326.40 | Pennsylvania |
| Kauder's Pedigreed Leghorns | 328 | 323.70 | Georgia |
| Foreman Poultry Farm | 330 | 320.40 | Georgia |
| George M. Heberer | 328 | 318.95 | Texas |
| W. A. Seidel | 345 | 318.85 | Texas |
| Foreman Poultry Farm | 322 | 318.45 | Michigan |
| Kauder's Pedigreed Leghorns | 330 | 317.45 | Storrs |
| Foreman Poultry Farm | 350 | 317.10 | Georgia |
| Foreman Poultry Farm | 339 | 316.20 | Texas |
| W. E. Pyles and Son | 322 | 312.90 | Michigan |
| Kauder's Pedigreed Leghorns | 322 | 312.05 | Passaic, N. J. |
| Alfred Mac Millan | 307 | 311.15 | Texas |
| Sand Springs Home Farm | 326 | 309.80 | Texas |

## 20 Highest Rhode Island Red Pens in Country to November 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| H. J. Hardin | 367 | 369.10 | Georgia |
| H. J. Hardin | 360 | 359.20 | Georgia |
| Crooks Farm | 355 | 347.00 | Storrs |
| E. B. Parmenter | 354 | 345.15 | Storrs |
| R. E. & F. H. Kendrick | 338 | 345.05 | Rhode Island |
| J. J. Warren | 353 | 339.45 | Storrs |
| J. J. Warren | 349 | 337.85 | Storrs |
| W. C. Mullins | 329 | 335.55 | Texas |
| E. B. Parmenter | 314 | 328.30 | Rhode Island |
| George E. Wells & Son | 334 | 323.50 | Storrs |
| G. B. Treadwell | 332 | 318.45 | Storrs |
| E. B. Parmenter | 317 | 317.90 | Florida |
| E. B. Parmenter | 312 | 314.40 | Maine |
| Alampi Poultry Breeding Farm | 336 | 313.10 | Passaic, N. J. |
| J. J. Warren | 310 | 312.25 | Pennsylvania |
| J. J. Warren | 312 | 311.50 | New York State |
| L. D. Bartholomew | 341 | 311.25 | Storrs |
| Donald I. Goodenough | 308 | 310.35 | Storrs |
| Ralph W. Anderson | 328 | 309.15 | Storrs |
| Thomas Mettler | 318 | 308.10 | Hunterdon, N. J. |

## 20 Highest New Hampshire Pens in Country to November 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Eben Wood | 333 | 350.75 | Storrs |
| George A. Pearce | 328 | 323.95 | Hunterdon, N. J. |
| R. H. Barteaux | 324 | 317.50 | Pennsylvania |
| Pine Top Poultry Farm | 303 | 310.25 | Storrs |
| Thomas J. Harrold | 340 | 307.20 | Georgia |
| Kauder's Pedigreed Leghorns | 299 | 303.90 | Georgia |
| Hubbard Farms | 334 | 303.90 | Pennsylvania |
| George A. Pearce | 324 | 302.60 | Passaic, N. J. |
| Pine Mountain Valley Farms | 311 | 292.30 | Georgia |
| Woody's Hatchery and Poultry Farm | 315 | 287.30 | Georgia |
| Lamar Sexton | 305 | 286.70 | Hunterdon, N. J. |
| Ned C. Willoughby | 319 | 282.80 | Georgia |
| Pine Top Poultry Farm | 311 | 280.80 | Georgia |
| Pine Mountain Valley Farms | 298 | 276.05 | Georgia |
| H. Guy Loose | 292 | 274.30 | Pennsylvania |
| Eben Wood | 267 | 270.55 | Passaic, N. J. |
| Pine Top Poultry Farm | 274 | 260.30 | Michigan |
| Thomas J. Harrold | 287 | 256.85 | Georgia |
| Floyd H. Moore | 278 | 253.75 | Pennsylvania |
| Wene Chick Farms | 255 | 248.95 | Storrs |

## 20 Highest Barred Plymouth Rock Pens in Country to November 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Norman W. Amidon | 337 | 322.00 | Pennsylvania |
| R. R. Parks | 304 | 283.75 | Florida |
| Woody's Hatchery and Poultry Farm | 317 | 275.10 | Georgia |
| Dryden Poultry Breeding Farm | 304 | 275.00 | Georgia |
| Fuzzydele Farms | 299 | 270.50 | Storrs |
| Stuart W. Smith | 289 | 267.25 | Storrs |
| Broad Acres Farm | 304 | 266.60 | Storrs |
| R. C. Cobb | 279 | 261.70 | Storrs |
| J. W. Schaible | 295 | 261.25 | Hunterdon, N. J. |
| Dryden Poultry Breeding Farm | 292 | 258.15 | Pennsylvania |
| Booth Farms and Hatchery | 265 | 257.35 | Missouri |
| E. B. Parmenter | 257 | 256.20 | Georgia |
| Dryden Poultry Breeding Farm | 295 | 253.20 | Storrs |
| Schwegler's Hatchery | 291 | 250.00 | Central New York |
| R. R. Parks | 268 | 243.50 | Pennsylvania |
| R. R. Parks | 249 | 231.30 | Maine |
| George F. Shaw | 248 | 222.00 | Pennsylvania |
| Fellows Brothers | 235 | 221.35 | Storrs |
| C. A. Peeler | 245 | 221.10 | Central New York |
| Hockhockson Farm | 252 | 219.55 | Hunterdon, N. J. |

## 20 Highest White Plymouth Rock Pens in Country to November 1

| Owner | Eggs | Points | Test |
|---|---|---|---|
| E. A. Hirt | 307 | 291.45 | Storrs |
| Kalerok Farm | 292 | 289.60 | Pennsylvania |
| John Spangenburg | 291 | 275.50 | Storrs |
| Albert C. Lawton | 296 | 271.30 | Storrs |
| Oscar W. Holtzapple | 310 | 270.90 | Georgia |
| John Spangenburg | 283 | 266.70 | Maine |
| Kalerok Farm | 269 | 263.85 | Maine |
| Townsley Trapnest Farm | 268 | 255.40 | Georgia |
| A. H. Ward Poultry Farm and Hatchery | 283 | 249.35 | Oklahoma |
| Riley Poultry Farm | 267 | 248.55 | Oklahoma |
| Drumm Egg Farm | 262 | 248.40 | Georgia |
| Homestead Farm | 297 | 243.15 | Pennsylvania |
| E. A. Hirt | 251 | 242.10 | Rhode Island |
| Oscar W. Holtzapple | 261 | 237.95 | Oklahoma |
| P. S. Davis | 270 | 237.65 | Central New York |
| Missouri Valley Poultry Farm | 239 | 236.15 | Missouri |
| Missouri Valley Poultry Farm | 278 | 235.80 | Oklahoma |
| T. S. Townsley | 236 | 223.95 | Storrs |
| Riley Poultry Farm | 260 | 223.30 | Georgia |
| Oscar W. Holtzapple | 242 | 219.70 | Pennsylvania |

## Average Production in Each Test to November 1

| Test | No. Birds | Eggs Per Bird | Points Per Bird | Egg Wt. Per Doz. In Ounces | Per Cent Mortality for Oct. | Per Cent Mortality to Nov. 1 |
|---|---|---|---|---|---|---|
| Storrs | 1,300 | 17.25 | 18.61 | 22.24 | .00 | .00 |
| Georgia | 1,352 | 20.14 | 18.36 | 21.86 | .73 | .73 |
| Pennsylvania | 1,079 | 18.30 | 16.65 | 21.84 | .18 | .18 |
| Oklahoma | 650 | 17.36 | 15.80 | 21.84 | .92 | .92 |
| Hunterdon, New Jersey | 650 | 16.90 | 15.58 | 22.12 | .61 | .61 |
| Texas | 1,456 | 16.43 | 15.23 | 21.96 | .00 | .00 |
| Michigan | 741 | 16.30 | 14.88 | 21.91 | .40 | .40 |
| Florida | 1,248 | 15.89 | 14.45 | 21.81 | .16 | .16 |
| Passaic, New Jersey | 1,144 | 14.21 | 13.20 | 22.27 | .08 | .08 |
| Missouri | 780 | 13.29 | 12.98 | 23.42 | .00 | .00 |
| Arizona | 390 | 14.38 | 12.84 | 21.40 | 1.53 | 1.53 |
| Central New York | 910 | 13.33 | 11.89 | 21.40 | .00 | .00 |
| Rhode Island | 650 | 12.03 | 11.47 | 22.87 | 1.23 | 1.23 |
| New York State | 1,105 | 12.29 | 11.47 | 22.36 | .36 | .36 |
| Western New York | 884 | 12.19 | 10.94 | 21.46 | .00 | .00 |
| Maine | 1,027 | 12.02 | 10.87 | 21.69 | .38 | .38 |
| All Tests | 15,366 | 15.52 | 14.24 | 22.00 | .32 | .32 |

## High Pen, Each Breed, in Illinois Non-Standard Test for the Year

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Walter Swanson | White Leghorn | 2459 | 2511.20 |
| Egyptian Hatchery | Barred Rock | 2267 | 2307.30 |
| Illinois Hatchery | Rhode Island Red | 1685 | 1821.60 |
| Mrs. Curtis Manshak | White Rock | 1703 | 1758.70 |
| Corn Belt Hatchery | New Hampshire | 1247 | 1350.30 |
| Belldear Hatchery | White Wyandotte | 1304 | 1320.20 |
| Macomb Hatchery | Buff Orpington | 1270 | 1305.65 |
| H. R. Harnes | Brown Leghorn | 967 | 906.20 |
| Wallace Moody | Buff Rock | 847 | 854.75 |

## High Hen, Each Breed, in Illinois Non-Standard Test for the Year

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| Illinois Hatchery | White Leghorn | 294 | 314.90 |
| Illinois Hatchery | Barred Rock | 279 | 298.35 |
| Curtis Manshak | White Rock | 261 | 264.40 |
| Corn Belt Hatchery | New Hampshire | 228 | 250.20 |
| Belldear Hatchery | White Wyandotte | 236 | 240.15 |
| Illinois Hatchery | Rhode Island Red | 217 | 236.50 |
| Wallace Moody | Buff Rock | 195 | 198.60 |
| Macomb Hatchery | Buff Orpington | 190 | 193.50 |
| H. R. Harnes | Brown Leghorn | 134 | 147.10 |

## 5 High Pens, R. O. P. Progeny Test, Paterson, N. J., to November 1

| Owner | Breed | Eggs | Points |
|---|---|---|---|
| E. B. Parmenter | Rhode Island Red | 387 | 360 |
| Crooks Farm | Rhode Island Red | 335 | 321 |
| Eli H. Bodine | White Leghorn | 304 | 277 |
| W. B. Coles | White Leghorn | 292 | 255 |
| Creighton Brothers | White Leghorn | 249 | 222 |

NEARLY 30,000 recruits have been enrolled in the Women's Land Army in England, to aid in poultry farming, general farming and market gardening, according to Poultry World for October 20, 1939.

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For those who wish to file their copies of the DIGEST and use them for future reference, the special DIGEST binder holding 12 issues will simplify the filing problem. The binder is finished in maroon, Levant-grained Fabrikoid. The price is $1.00 postpaid in the United States.

## *Plans for 1940*

Editorially, we expect to expand our sources of material considerably in 1940 by getting more publications which carry poultry articles and by obtaining more of the reports on poultry experimental work. A number of readers have tipped us off as to articles and talks with DIGEST possibilities, and we hope that we can count on some material coming to us this way in 1940. This applies particularly to talks which are delivered from manuscript.

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